JANUARY, 1938

COTTON

Serving the
TEXTILE INDUSTRIES

20382

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DEB-E-LITE

the DEBEVOISE PAINT for the TEXTILE INDUSTRY

For a Cleaner, Brighter Plant at a Lower Cost To You

YOU know how important paint is in textile mills like yours, to protect every kind of surface, wood, brick, cement and plaster . . . inside and out.

But even more important to your pocket-book is the *kind* of paint you choose.

Inside, you need a paint specially processed to meet textile mill operating conditions; that withstands *humidity,* provides well-diffused light, covers a lot of territory and is easy to keep clean and bright.

That's the kind of paint you get in DEB-E-LITE, whether it be flat, eggshell or gloss . . . for wood or plaster walls and ceilings and masonry surfaces as well.

For long-lasting *outside* paints, DEB-E-LITE is your best buy . . . No. 610 for your buildings and mill villages generally. And for the interior of mill cottages, use DEB-E-LITE No. 323 FLAT.

Whichever DEB-E-LITE you choose will give you fine service . . . because the Debevoise Company specializes in the manufacture of Industrial Paints and *nothing else.*

And all DEB-E-LITE Paints are offered to you at the money-saving wholesale prices that, only our direct-to-you sales policy makes possible.

Why not write for full data on DEB-E-LITE today?

THE DEBEVOISE COMPANY
PAINT MAKERS
968-978 GRAND STREET
BROOKLYN, N. Y.

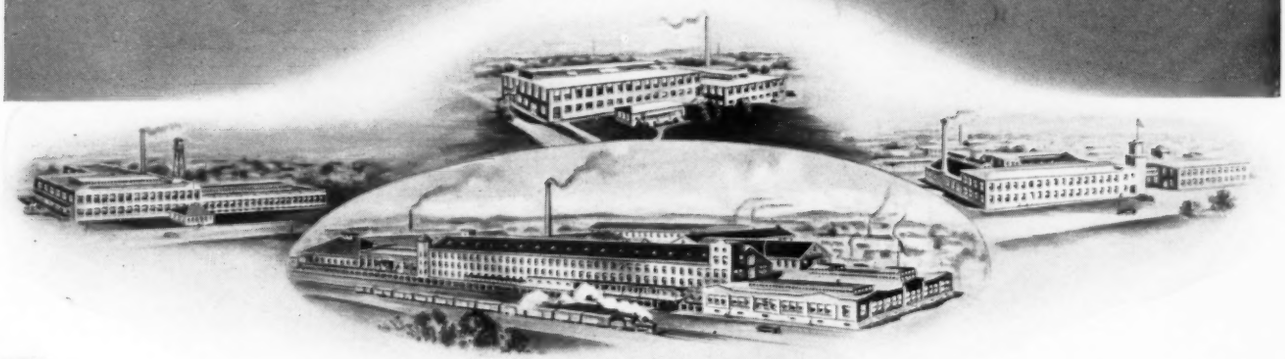
TS1550
.C8

Volume 102.
Number 1.

COTTON

January, 1938

THE LARGEST YARN DYEING CAPACITY IN THE WORLD



Three Little Words

DETERMINE ITS VALUE TO YOU

These four buildings house the largest yarn dyeing capacity in the world. They have a large number of package dyeing machines in 22 different sizes from 1 lb. to 3000 lbs. in capacity to facilitate prompt and efficient handling of all sizes of orders and to provide any quantity of yarn ordinarily required, all colored exactly the same shade. Supplementing these dyeing machines is sufficient package winding and yarn converting equipment to take care of both normal and emergency requirements.

Impressive as these facts may be, they would mean little to the user of colored yarns were it not for the fact that "3 little words" mean much to us. These 3 little words are SERVICE, QUALITY and RELIABILITY. The dictionary defines them respectively as follows . . . .

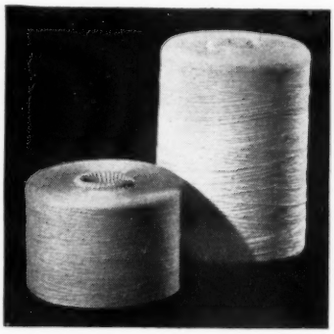
1. The performance of labor for the benefit of another.
2. Class, kind or grade, as a fine quality of yarn.
3. The state of being worthy of confidence.

Because we have always understood that any permanently successful business must be founded on these attributes, we have tried to live up to their definitions. Furthermore it is only logic to assume that understanding translated into action has been the fundamental reason for present Franklin Process leadership.

May we translate understanding into action for you?

THE FRANKLIN PACKAGE

Another reason for Franklin Process leadership. Its firm wind and square ends make it an excellent supply for winding and warping by rotation or over-end at high speed.



Franklin Process

SPECIALISTS IN PACKAGE DYEING SINCE 1910

Natural Yarns *Colored Yarns* *Glazed Yarns* *Dyeing and Processing Machines*

PROVIDENCE · PHILADELPHIA · GREENVILLE · CHATTANOOGA · N. Y. REPRESENTATIVE, 40 WORTH ST.

COTTON is published monthly by W. R. C. Smith Publishing Company, Dalton and Atlanta, Ga.
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Entered as second-class matter at the Post Office, Dalton, Ga., under the Act of Congress of March 3, 1879.

H392
S882

New Year's Resolutions

We Renew our Pledge
that has held
for More than 100 Years
Ever to Strive
to Build Better Machines
and to Continue to Improve
All our Products
Used by the Textile Industry
That our Customers may Prosper
and We may Deserve
Their Continued Support

Draper Corporation

I will Keep my Mill Equipped
with Up-to-date Machines
I will Use only Repair Parts
that will Keep them Like New
I will not Let Price Alone
Influence my Selection
of These Parts or of Necessary
Accessories and Supplies
That my Mill
May be Efficient
and My Profits Better

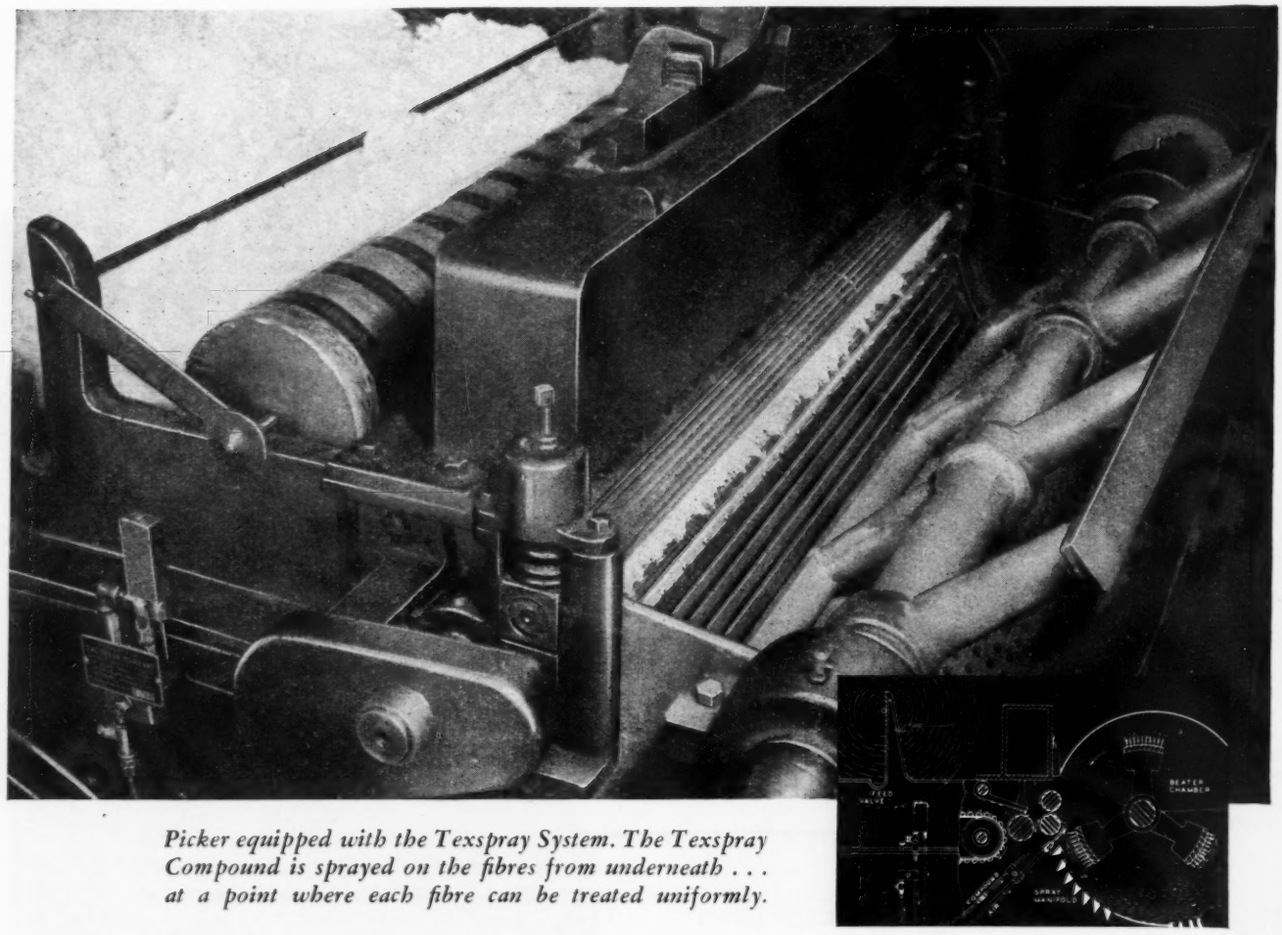
Mill Owner

But ~
Good Policies Endure

1938

N Le M · 12 Mar 40

AVAILABLE *in all cotton manufacturing centers*



Picker equipped with the Texspray System. The Texspray Compound is sprayed on the fibres from underneath . . . at a point where each fibre can be treated uniformly.

THE TEXSPRAY System's popularity is due to its effective application.

Uniform distribution of the compound on every cotton fibre is the key to successful conditioning. Texspray Compound is applied to the cotton as it enters the beater chamber of the picker. This is the one place where each fibre can be treated evenly and completely.

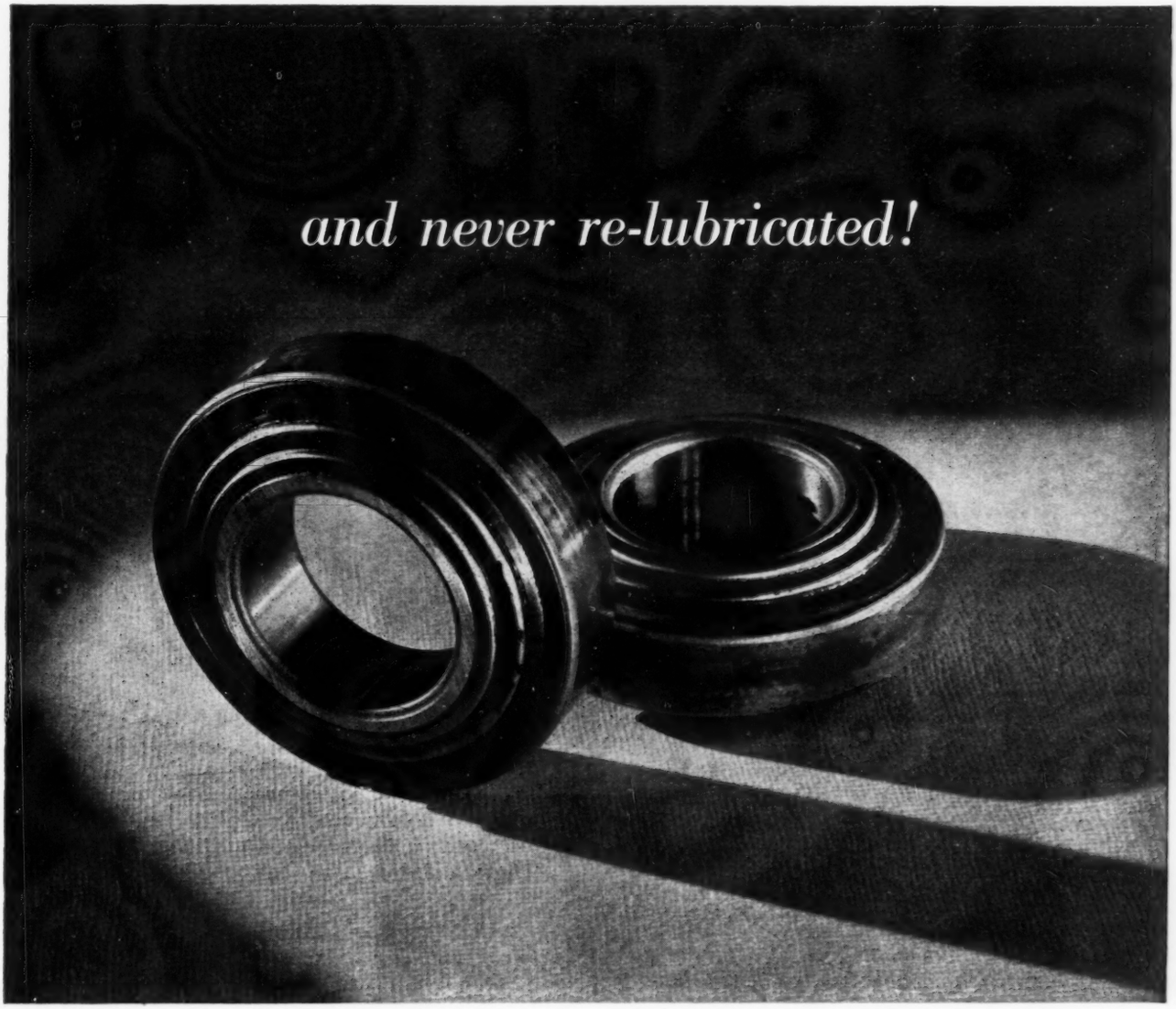
The Texspray method of cotton conditioning provides healthier working conditions, saves all the good fibres, makes them more flexible, smoother, and easier to draft. Static is controlled. Fly is reduced. There is far less end-breakage. The quality of the yarn is greatly improved.

You are invited to let us send you a 16-page booklet descriptive of the Texspray System of cotton conditioning. This is free for the asking.

The Texas Company, 135 East 42nd Street, New York City.

TEXACO TEXSPRAY *Compound*

"NIGHT AND DAY"
FOR SIX YEARS



• These New Departure self-sealed, lubricated-for-life electric motor bearings have not cost one cent for maintenance. After the equivalent of 18 years ordinary operation, they are still serviceable. This is not an isolated instance. Millions of N-D Seals are giving surprising results everywhere.

How would you like to get this kind of service in your machines or electric motors? New Departure engineers would welcome the opportunity of working with you for better bearing performance.

Booklet "Sealed" tells the interesting story of self-sealed bearings. Ask for Booklet D-C.

New Departure, Division General Motors Corporation, Bristol, Conn. Chicago and Detroit.

NEW DEPARTURE
N-D-SEAL BEARINGS

2645

MEASURING

FIVE BILLIONTHS OF A GRAM

Speaking of "important trifles," there is no better example than those impurities in caustic soda which make so much trouble in rayon manufacture. For of all processing and manufacturing operations, rayon manufacture is probably the one in which alkali impurities get—and deserve—the most attention.

It is a significant fact, therefore, that Mathieson Caustic Soda sets the standard for purity in the rayon industry. It is equally significant that Mathieson should be the first to develop a practical method for quantitative spectrographic analysis of caustic soda.

By using spectrographic equipment, Mathieson has reduced the time required for quantitative analysis to a fraction of that previously required. Even more important, the accuracy of the results obtained has been increased to a point where impurities present in amounts as low as 1/100,000th of 1% (actually about 5 billionths of a gram) can be closely determined.

With this greater speed and increased accuracy, Mathieson is able to control the purity and uniformity of its caustic soda more closely than ever before. In addition, the company's technical and spectrographic staffs are in position to render valuable service to users of caustic in establishing their own spectrochemical laboratories and procedures.

Chemical buyers interested in knowing more of the part Mathieson has played in the development of the alkali industry will want to own a copy of "Mathieson Chemicals," a 36-page booklet outlining the company's history and describing its various products. Write for your copy today to The Mathieson Alkali Works (Inc.), 60 East 42nd Street, New York, N. Y.

Mathieson Chemicals

SODA ASH . . . CAUSTIC SODA . . . BICARBONATE OF SODA . . . LIQUID CHLORINE . . . BLEACHING POWDER . . . HTH AND HTH-15 . . . AMMONIA, ANHYDROUS AND AQUA . . . PH-PLUS (FUSED ALKALI) SULPHUR CHLORIDE . . . CCH (INDUSTRIAL HYPOCHLORITE) . . . DRY ICE (CARBON DIOXIDE ICE) ANALYTICAL SODIUM CHLORITE

Fundamental TO THE TEXTILE INDUSTRY

NEVER before had a motor been actually designed and built to meet the specific needs of the Textile Industry, until Allis-Chalmers engineers made a thorough study of the subject, with a view to preventing textile motors from plugging up with lint and fly . . . the Allis-Chalmers Quick-Clean Motor is the result.

The makeshift of merely smoothing up the air passages of a standard motor for textile applications became obsolete with the advent of the Allis-Chalmers Quick-Clean Motor.

This motor actually and thoroughly cleans itself, thus eliminating overheating and reducing maintenance costs to the minimum.

Three exclusive Allis-Chalmers features are responsible for this—(1) Big, unrestricted air passages (2) Glass-smooth inside surfaces to which lint and dust can not adhere (3) All working parts positively dust-sealed.

Available in four sizes: 5, 7½, 10 and 15 hp. Standard N. E. M. A. mounting dimensions.

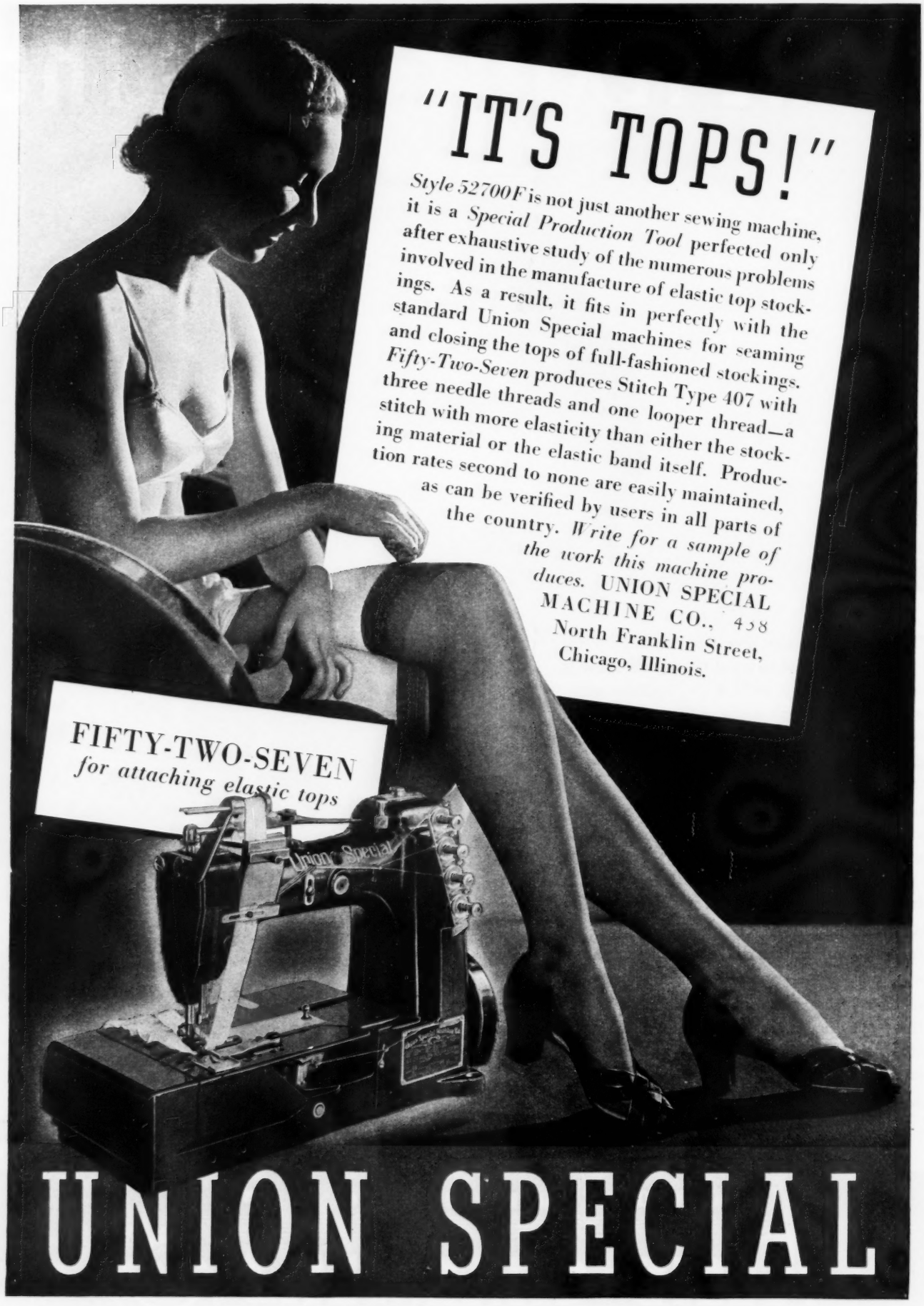
The Allis-Chalmers Manufacturing Co. builds standard motors of every type from 1 hp. up—also motors for special application.

837

MOTOR DIVISION

ALLIS-CHALMERS

MILWAUKEE WISCONSIN


"IT'S TOPS!"
Style 52700F is not just another sewing machine, it is a Special Production Tool perfected only after exhaustive study of the numerous problems involved in the manufacture of elastic top stockings. As a result, it fits in perfectly with the standard Union Special machines for seaming and closing the tops of full-fashioned stockings. Fifty-Two-Seven produces Stitch Type 407 with three needle threads and one looper thread—a stitch with more elasticity than either the stocking material or the elastic band itself. Production rates second to none are easily maintained, as can be verified by users in all parts of the country. Write for a sample of the work this machine produces. UNION SPECIAL MACHINE CO., 458 North Franklin Street, Chicago, Illinois.
FIFTY-TWO-SEVEN
for attaching elastic tops
Union Special
UNION SPECIAL

NO SUBSTITUTES

Sulphonated Olive Oil W-700 Is the Highest Type of Straight Sulphonated Spanish Olive Oil Obtainable ...It Is 100% Pure Olive Oil Containing No Substitutes

Jacques Wolf's long experience in sulphonating oils led to this new process of sulphonation particularly adaptable to olive oil.

Sulphonated Olive Oil W-700 gives excellent results as a softener and penetrator for acetates and other synthetic fibres. It is completely soluble, high in SO_3 content, will not turn rancid and imparts a soft satiny finish to silks, rayons and acetates. It is miscible with organic acids and weighter finishes and with pigments for delustre finishes.

Sulphonated Olive Oil S-370 DP is a specially prepared product which is miscible with mineral oils for finishing.

In operations where the pure olive oil content of Sulphonated Olive Oil W-700 is not essential we can supply sulphonated teaseed in combination with the pure olive oil product.

Write today for working samples for your own testing.

JACQUES WOLF & CO.

MANUFACTURING CHEMISTS AND IMPORTERS . . . PASSAIC, NEW JERSEY

Warehouses: **Providence, R.I.; Philadelphia, Pa.; Utica, N.Y.; Chicago, Ill.; Greenville, S. C.; Chattanooga, Tenn.**

MILL CUTS COSTS $6280 A YEAR

If your system of slasher control is not complete, read this story and find out what Taylor Engineers can do in your mill to reduce costs

IN THE Taylor book of textile case histories is a mill that makes carded broadcloths in the usual constructions. Its production is around two and one quarter million pounds of cloth a year.

This mill, too, had the problem of finding ways to save money and increase the uniformity of its product. Taylor engineers consulted with mill executives, made a thorough survey of the slashing operation and recommended a system of Slasher Temperature Control that would tie in with every step in the process.

The money savings quickly paid for the cost of the System. The increased profit from readier salability of more uniform cloth was difficult to estimate, but it followed naturally.

SIZE AND COTTON SAVED

Starting at the beginning, Taylor engineers were able to decrease the size concentration. And they brought about a 1.2% increase in the solids content of the yarn.

Warp loom stoppages were reduced 18% because of the better and more uniform sizing and conditioning of the yarn in the slasher. This accounted for an overall increase in weaving efficiency, the money value of which was not released by the mill.

The results in money saving: (1) Cost of sizing material was cut $2,470 a year; (2) Saving on cotton from decreased shedding and the better retention of solids amounted to $2,760 a year; and (3) Coal saving for the year was around $1,000.

The total savings accounted for in money came to around $6,280. There are others that could not be measured definitely.

This true story, along with many others in Taylor files, proves two things: first, that the Slasher is often the place to start when a mill decides to cut costs; and second, that with a Taylor System of Slasher Control tailored to meet the specific needs of your mill you have an investment that is sure to give you immediate returns in lower costs, more uniformly conditioned yarns and higher net profits. Taylor engineers developed and perfected Slasher Temperature Control to its high point today as shown in its application to the new Saco-Lowell High Speed Slasher.

GET FACTS ABOUT SAVINGS

Whatever slashing equipment you now have, a Taylor System of Temperature Control can be designed to become an integral part of its operation. For full information ask a Taylor Representative —or write direct to Taylor Instrument Companies, Rochester, N.Y. Plant also in Toronto, Canada. Manufacturers in Great Britain—Short & Mason, Ltd., London, England.

Taylor

Indicating | Recording • Controlling

TEMPERATURE, PRESSURE, FLOW *and* **LEVEL INSTRUMENTS**

1937 COTTON

[*The 1937 Crop Is Inferior In Staple and Character.]

The disadvantages resulting from this unusual condition can be minimized to a great extent by efficient and thorough blending and cleaning, and by complete fibre control at every drafting process.

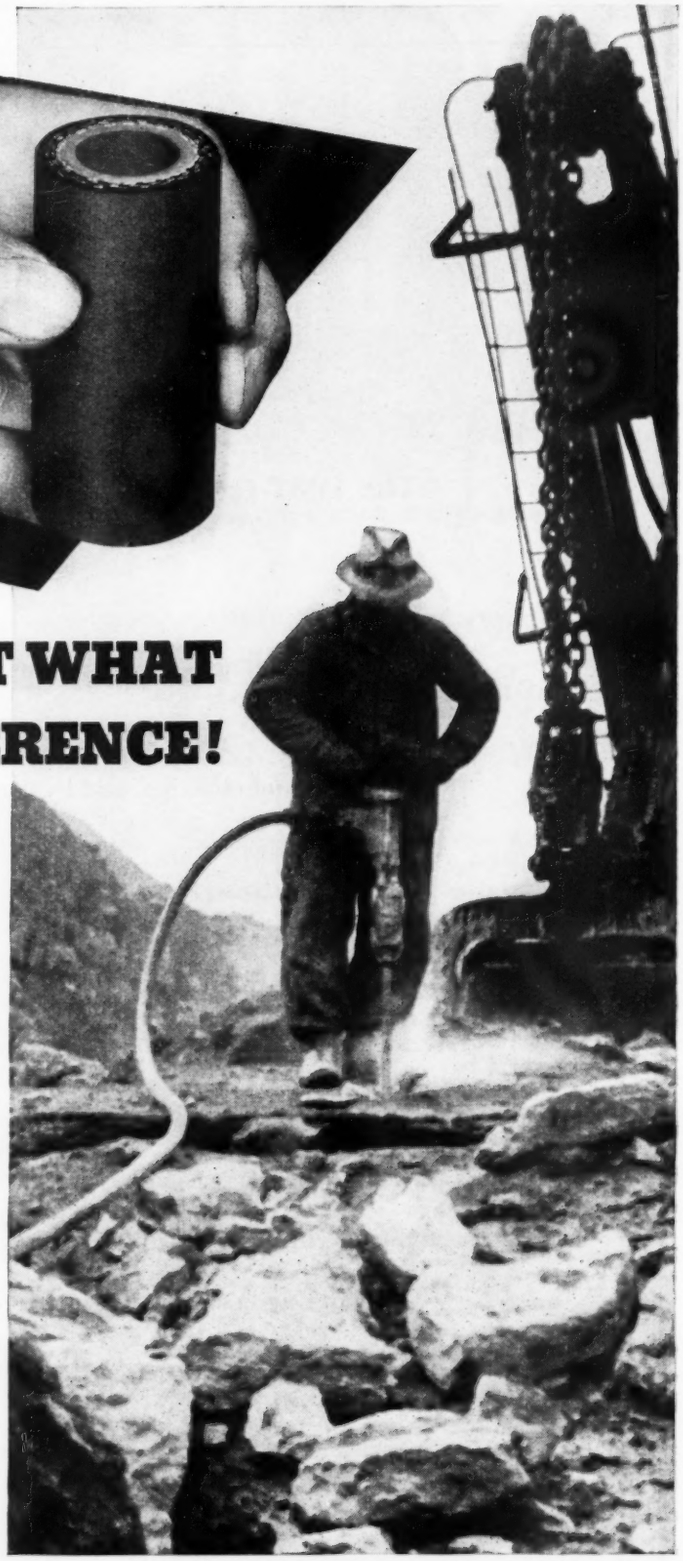
Now, more than ever, mills can profit by using equipment designed to blend and clean without fibre damage, to draft with effective and efficient fibre control, to produce yarns reflecting the best characteristics of the cotton used.

If your break constant is down or if your yarns are uneven, our engineers will, upon request, gladly cooperate with you in planning essential improvements.

*From Trade Reports

SACO-LOWELL SHOPS

60 BATTERYMARCH STREET, BOSTON . . . CHARLOTTE, N. C., GREENVILLE, S. C., ATLANTA, GA.



HOSE? YES! BUT WHAT AN *Amazing* DIFFERENCE!

Many customers who visit our plant are particularly impressed with Republic's extensive hose-making facilities and the modern, scientific processes we use to obtain quality and to check that quality by laboratory tests. We are able to show them that Republic's Standards are not confined to customers' specifications and that we insist on a higher quality regardless of type, size or special requirements.

Republic Mechanical Rubber Hose is made in types and grades to meet every need and its better quality has won recognition from all branches of industry. The nation's best known mill supply distributors carry Republic Hose and can serve you promptly. Ask a Republic Distributor or write to us for bulletins on any types of hose in which you are interested.

REPUBLIC RUBBER

Division OF LEE RUBBER AND TIRE CORPORATION

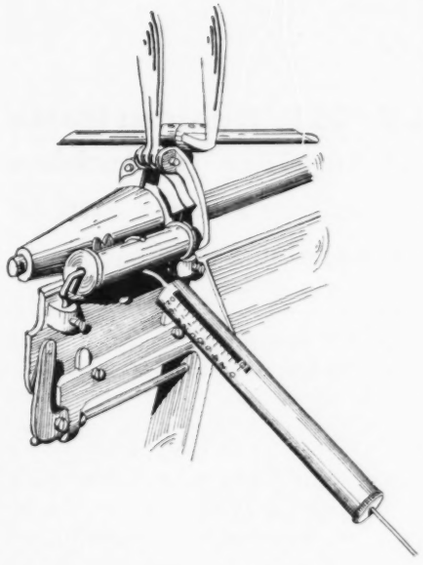
YOUNGSTOWN, OHIO

Manufacturers of HOSE
BELTING • PACKING
MOLDED PRODUCTS

ORDER REPUBLIC RUBBER PRODUCTS FROM YOUR DISTRIBUTOR

GETTING THE MOST FROM WINDING

Information about winding designed to show improvements in winding equipment and new ideas in the winding operation



PRESSURE GAUGE
(No. 50 Winder)

In order to check the uniformity of pressure on winding spindles without resorting to the judgment of the operator, the Pressure Gauge was designed. Readings should be taken from several spindles with packages of various diameters. A comparison of these readings will show the spindles that need adjustment. Separate readings can be taken with the dog in contact with the dog segment; and compared with the amount of pressure when the dog is tied back. This will assist in making a special adjustment of the dog to get more uniform results.

But the package produced is the final test of quality, and pressure is only one of the adjustments necessary in order to get the best results from winding.

"SPINDLE CREEP"
(No. 90 Winder)

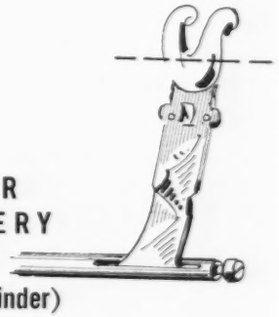
When the stopping or sizing mechanism goes into operation, the spindle normally comes to a full stop. Should the spindle "creep" (continue to revolve slowly), it is probable that the clutch lever has worn down, causing it to bottom in the clutch. To overcome this, it may be possible to file a little off the bottom of the clutch lever, but eventually it will have to be replaced.

"CORKSCREW" BOBBINS
(No. 90 Winder)

A "corkscrew" effect on the outside of a bobbin is most likely to be caused by a slipping clutch, resulting in a variation in speed. The clutch spring may be weak, as the result of constant use, and should be replaced. If a new spring is not available, a temporary adjustment can be made by removing the spindle far enough to take out the spring and stretch it; this will provide enough tension to prevent the clutch from slipping. It is also possible that the clutch may be bottoming, making a poor contact.

A poor fit between the bobbin and spindle will also result in a "corkscrew" effect, because the bobbin will slip on the spindle. Or the spindle may not be running true, in which case it should be straightened.

Other possible causes of "corkscrew" include a bent traverse wheel, a worn hub or traverse bar (either of which should be replaced) and dirt on the hub, causing sticking. The traverse tension spring may also cause trouble. If it is too tight, the traverse wheel will bind; if it is too loose, it will spin.



PROPER DELIVERY POINT
(No. 50 Winder)

For good winding, the delivery of the yarn from the button guide to the package should occur at the right point. An easy way to check this, is to place a piece of carbon paper between the empty cone and the button guide. When pulled out, the carbon will leave a smudge on the guide. If this smudge is just below the V in the guide, the delivery point is proper for good winding.

"There's a Universal Winder for Every Textile Need"

UNIVERSAL WINDING COMPANY

BOSTON - NEW YORK - UTICA - CHARLOTTE - ATLANTA - PROVIDENCE

"At this rate, the oil

.... GULFCREST OIL Demonstrates Phenomenal Stability in Turbine Systems of Leading Plants and in Laboratory Tests

"This is the most remarkable experience we have ever had with a turbine oil," says the manager of a big power plant in which Gulfcrest oil is in service. "Deterioration has been so slight that, at this rate, the oil will far outlast the turbine."

Many power plant operators who have had Gulfcrest oil in service a year or more are prepared to make similar statements. But of equal interest are the results of laboratory tests shown in the graphs below. They clearly illustrate the phenomenal stability of Gulfcrest oil as compared with what have been heretofore considered as good turbine lubricants.

Where, under accelerated oxidation tests, a normally good commercial turbine oil begins to oxidize rapidly at about 200 hours, Gulfcrest oil shows practically no deterioration in several months' continual punishment in the testing apparatus. Its marked superiority is so definitely established that there is practically no basis for comparison between this Alchlor processed turbine oil and others. (Gulfcrest is refined by the same exclusive Gulf process as Gulfpride—the world's finest motor oil.)

We suggest that you talk with a Gulf engineer about this remarkable turbine oil at your first opportunity.

GULF OIL CORPORATION
GULF REFINING COMPANY
GENERAL OFFICES: GULF BUILDING, PITTSBURGH, PA.

4 REASONS

why Gulfcrest Oil is the Turbine Lubricant of Unparalleled Quality

1 *Refined by the ALCHLOR Process.* This famous process, patented and owned exclusively by Gulf, is the most thorough and effective method for removing chemically active hydrocarbons as well as the general run of impurities present in all crudes.

2 *Highest resistance to oxidation.* This famous ALCHLOR Process synthesizes and rearranges the molecular structure of certain hydrocarbons, resulting in a finished product of greater stability. GULFCREST Oil stands alone in its high resistance to oxidation.

3 *Highest resistance to acidity and sludge.* Because of the elimination of oxidation catalysts in addition to the unparalleled refining power of the Alchlor Process these oils form less gum and deposits, less emulsion and sludge, when mixed with water over a period of several years continuous operation, than any other turbine oil of which we have record.

4 *Highest kilowatt-hour performance.* Because Alchlor not only makes possible an oil more thoroughly refined and homogeneous but also creates anti-oxidants, these oils have great resistance to deteriorating influences and are longer lived. Less makeup oil is required.

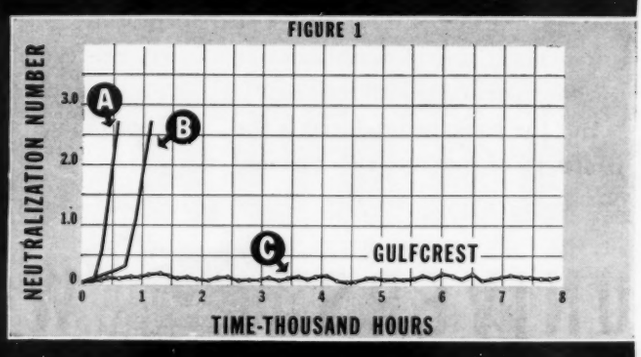


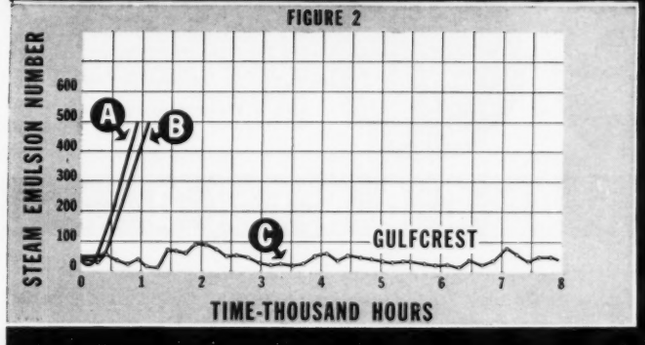
Fig. 1 shows the effect of accelerated oxidation at 210° F. in the presence of copper, iron and water on the *neutralization numbers* of three different turbine oils. Curve C shows the marked superiority of Gulfcrest oil. (This test was made in the laboratory of the Gulf Research & Development Company.)

will outlast the turbine.."

SAYS POWER PLANT MANAGER

Power plant operators who keep the Gulf engineer "in the picture" have the benefit of his cooperative service—and assurance of highest lubrication efficiency—at all times.

FIGURE 2



GULF INDUSTRIAL LUBRICATION

MAKERS OF GULF NO-NOX ETHYL GASOLINE AND GULFPRIDE OIL

Fig. 2 shows the effect of accelerated oxidation at 210° F. in the presence of copper, iron and water on the *steam emulsion numbers* of three different turbine oils. Curve C—representing Gulfcrest oil—shows the marked superiority of this Alchlor treated lubricant. (This test was made in the laboratory of the Gulf Research & Development Company.)

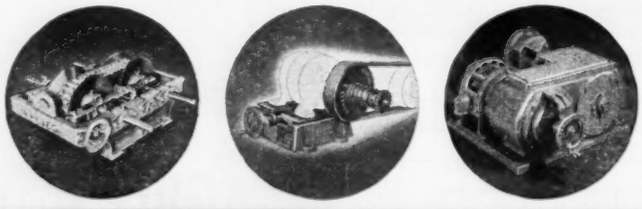
SPEED CONTROL IS *More* THAN A VARIABLE SPEED UNIT

● Engineering is required to apply speed control that gets results. Engineering of a highly specialized type backed by a complete line of speed control equipment. REEVES offers both. A nation-wide organization of seasoned speed control engineers. A complete line of modern equipment built around three basic, time-tested units available in a wide range of sizes, speed ratios, designs and controls.

Pictured above are a few of the 84 REEVES Speed Control engineers throughout the United States who are at your service without charge. These men are factory-trained. They have engineered thousands of speed control applications covering practically every type of driven machine. Their wide experience enables them to grasp your problems quickly. And with a complete line of equipment to choose from, they recommend the ONE best unit for your needs. Ask for the name and address of the REEVES engineer near you. Tell him what you want to accomplish. He will know how it can be done—and what it will cost.

THE 3 BASIC UNITS IN THE MODERN REEVES LINE

Right—REEVES Transmission for infinite speed adjustability over wide range and heavy duty service. Open and enclosed designs in sizes to 125 h. p. *Center*—REEVES Vari-Speed Motor Pulley, a direct drive for light h. p. to and including 7½ h. p., in ratios of speed variation not greater than 3:1.



Left—REEVES Vari-Speed Motodrive. Combines in one compact, self-contained enclosure, constant speed motor, REEVES speed varying mechanism and reduction gears (where required). In space-saving horizontal and vertical types—¼ to 10 h. p. Speed variations 2:1 to 6:1 inclusive.

REEVES SPEED CONTROL

REEVES PULLEY COMPANY, Dept. T-18, Columbus, Indiana

Please send information on your Speed Control units and their application to (machine or process):.....

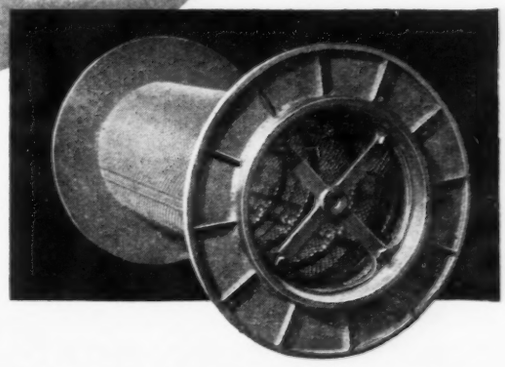
.....

NAME.....

COMPANY.....

ADDRESS.....

Designed for ECONOMY... Built for LONG LIFE



Monel dye beam manufactured by the R. D. Cole Mfg. Co., Newnan, Ga. Dimensions are 18 ins. O. D. by 54½ ins. long. Special 30-70 Nickel copper alloy, supplied by Kingsport F'dry & Mfg. Co., Kingsport, Tenn. is used for the cast heads, and for the supporting rings, which are welded to Monel tie-rods. Barrel and nuts are also Monel.

Corrosion-resistant metals and the rugged construction of this new dye beam assure many years of trouble-free service

● Obviously, economical to operate, is this new Monel* dye beam. That you can see by the amount of open area. Equally important, trouble-free performance is assured by the use of corrosion-resistant materials throughout. And long service is assured by the especially rugged construction.

Built in accordance with many users' recommendations, this new Monel dye beam follows special design in every detail. **BARREL:** Made of special temper, high strength Monel sheet with Brinell hardness (3000 Kg. load) of 165, average tensile strength 85,000 psi. Perforated with 7/16" dia. holes on ⅝" centers staggered. The special temper, high strength Monel sheet provides ample strength for carrying heavy loads at high speeds during beaming. **HEADS:** Cast in 30-70 Nickel-copper alloy, tensile strength 50,000 psi or more. Strongly reinforced with stiffening ribs to guard against bending or breaking, and insure true running. Immune to rusting; durable and corrosion-resistant. **REINFORCING STAYS:** Same 30-70 alloy as heads. Securely welded to ⅝" dia. Monel tie-rods. Vee contact permits unobstructed flow of dye liquor.

Old style Monel dye beams gave years of superior service. One user (name on request) has 65 of them, some in service over 12 years—and now has ordered 35 more. The new Monel dye beam is capable of even better performance. Incorporating in its design practical suggestions from many users, it assures years of trouble-free, economical service.

For names of manufacturers, mail the coupon—today.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York, N. Y.

MONEL INCO MONEL

*Monel is a registered trade-mark applied to an alloy containing approximately two-thirds Nickel and one-third copper. This alloy is mined, smelted, refined, rolled and marketed solely by International Nickel.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street, New York, N. Y.

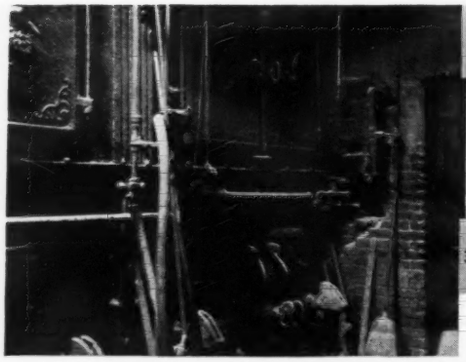
Gentlemen: Please forward names of firms manufacturing the new style Monel dye beam.

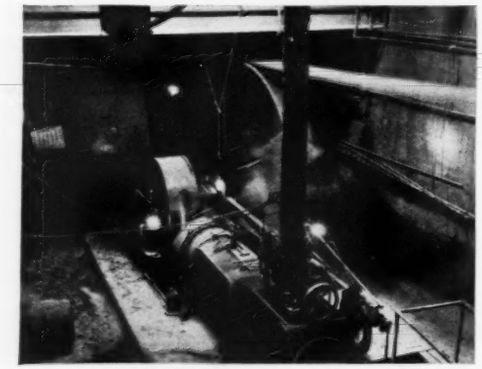
Name _____

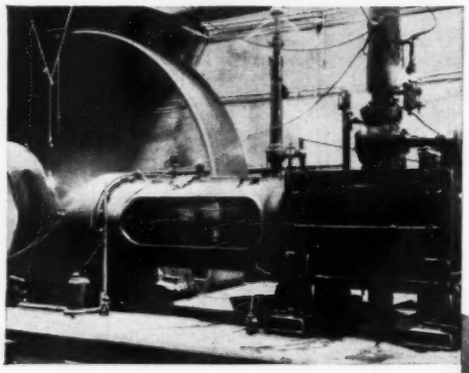
Company _____

Address _____

C1-38







Many power plants still look like this—imagine the efficiency!

Is Your Power Plant "1908" MODEL

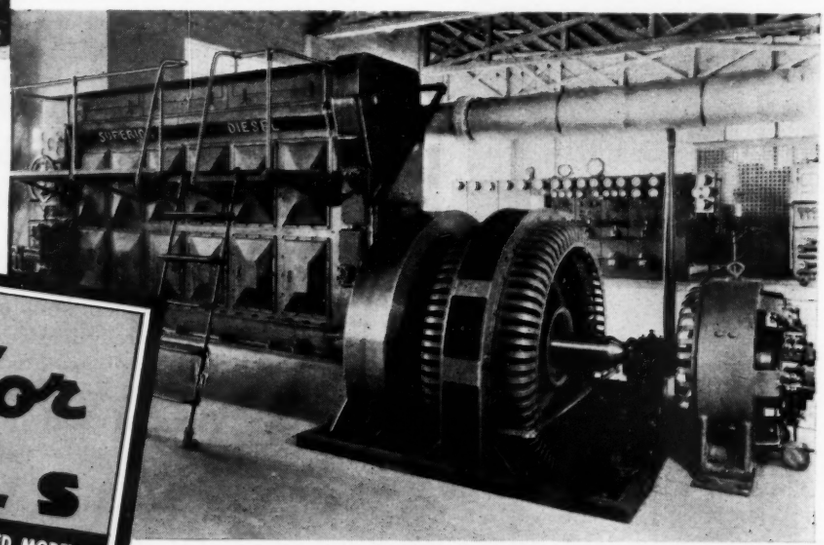
YOU may have invested in other improved equipment or processes . . . but have you done anything about your power plant upon which your entire production may depend? Too many power plants are still "1908 model"! Authorities know that antiquated, deficient power plant equipment wastes money every day!

How Antiquated Power Plants Cost You Money

Breakdowns are one way in which dollars slip away needlessly. It takes only one to cause serious loss in production. *Fuel waste* is another. A test any day would reveal power wasted away in heat which is not utilized as completely as possible.

Excessive maintenance and repair bills . . . slowing down of equipment of overloads or due to voltage drops . . . these are but two of many other ways in which antiquated power plants cost too much money.

Bring your power plant up to the highest standards of efficiency for 1938! Let us show you how Superior Diesels would fit such a program.



"1938 Model" with Superior Diesel

Superior DIESELS

HEAVY DUTY MODELS: 50 to 810 H.P., 250 to 720 R. P. M.

HIGH SPEED MODELS: 15 to 150 H.P., 900 to 1800 R. P. M.

THE NATIONAL SUPPLY COMPANY • SUPERIOR ENGINE DIVISION

FACTORIES: Springfield, Ohio; Philadelphia, Pa. • SALES OFFICES: Springfield, Ohio; Philadelphia, Pa.; New York, N. Y.; Los Angeles, Calif.; Houston, Texas.

We wish we could drop a New Years' Greeting into each mail box of all our friends whether on rural roads or in apartment house lobbies. Since this would be impossible, we devote our usual advertising page to this personal message to you.

With grateful appreciation of your courtesies and the evidences of your good-will that have made service a pleasure to us, we sincerely wish you an old-fashioned New Year abounding with success, good luck and happiness.

HOWARD BROS. MFG. CO.

Harry C. Boley
President

Collective Man Power Built the Pyramids .. but COLLECTIVE THINKING Built the Empire State Building

The Great Pyramid of Cheops, one of the original seven wonders of the world, took many years and many lives in the building; thousands of slaves provided the labor. It is an outstanding example of what collective man power can accomplish.

However, as an engineering achievement it becomes insignificant when compared with the Empire State Building which is almost three times as high, is equipped with every conceivable modern convenience; and yet required a mere fraction of the man power and time used in building the pyramid.

The Empire State Building overshadows the Great Pyramid as one of the wonders of the world; because its builders utilized something whose possibilities the ancient Egyptians did not fully appreciate;—namely, COLLECTIVE THINKING.

Collective thinking can also perform wonders in chemical processing in the textile industry. Furthermore, it is greatly needed here, because new fibres, new styles and a constantly and rapidly changing picture necessitate a versatility of knowledge and of experience that is seldom given to one man or even one organization.

A-H Consultation Service can make an important contribution to collective thinking in any textile plant on sizing, printing, or finishing problems. This service is rendered free of charge by a staff of specially trained chemists assisted by a completely equipped, modern laboratory and a company experience of 121 years.

Communicate with our nearest office and state your problem.

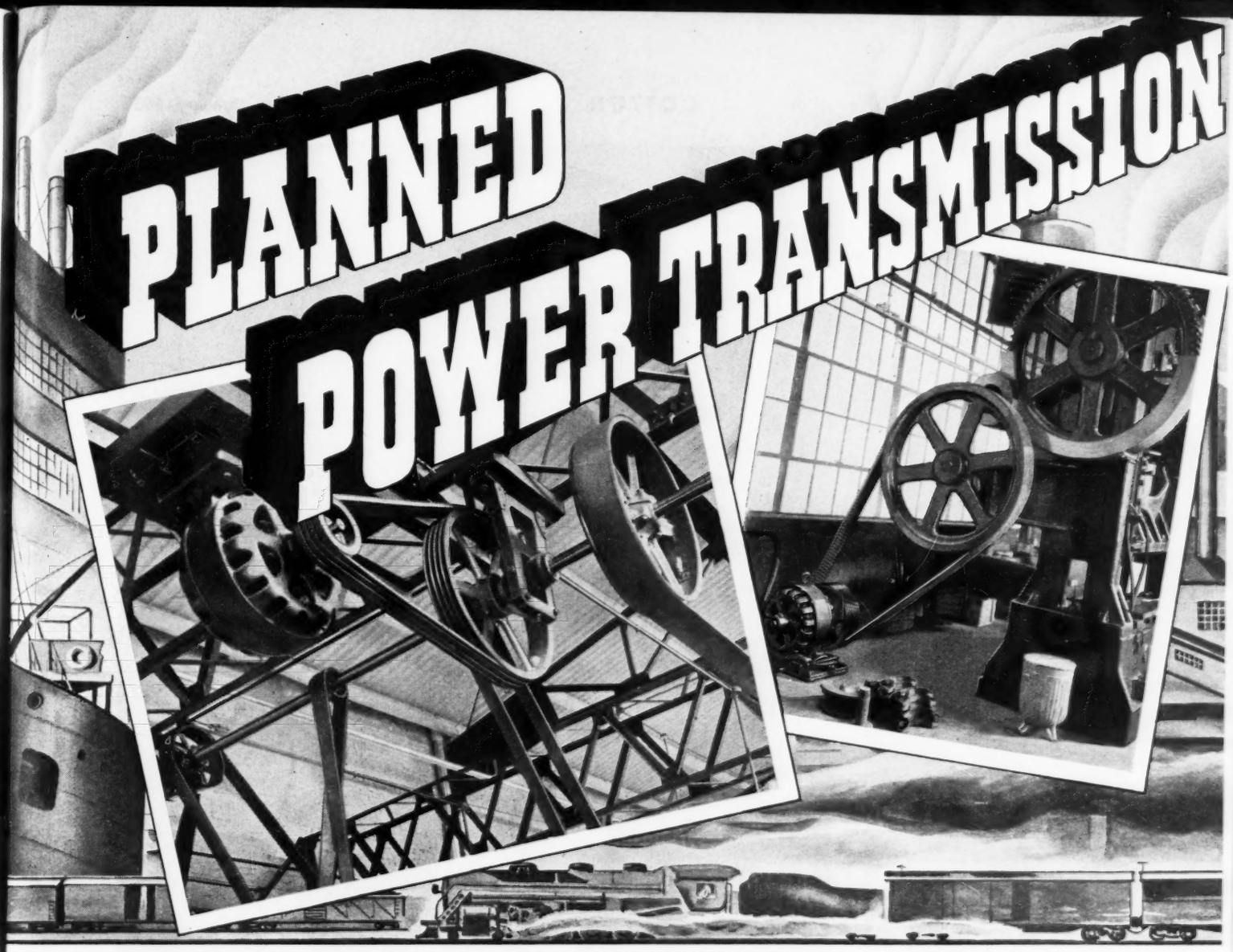
Arnold, Hoffman & Company, Inc.

Established 1815 — Plant at Dighton, Mass.

PROVIDENCE, R. I.

New York . Boston . Philadelphia . Charlotte

CHEMICALS Sizing and Finishing Gums and Compounds . Soluble Gums Softeners . Soluble Oils . Tallow . Waxes . Soaps . Flour Dextrines . Starches . Pigment Colors and Lakes . Ammonia Acids . Blue Vitriol . Borax . Bichromate of Soda . Bichromate of Potash . Liquid Chlorine . Chloride of Lime . Caustic Soda (solid or flaked).



Means Effective POWER Utilization

THERE'S a "long-range" plan for transmitting power from the source to utilization that reflects itself favorably on the production cost records of industry. It involves both equipment and methods.

"*Planned Power Transmission*" must be impartial. No one type of drive can economically meet the varied operating conditions and production requirements of industry — if its *billion dollar bill for power waste is to be materially reduced.*

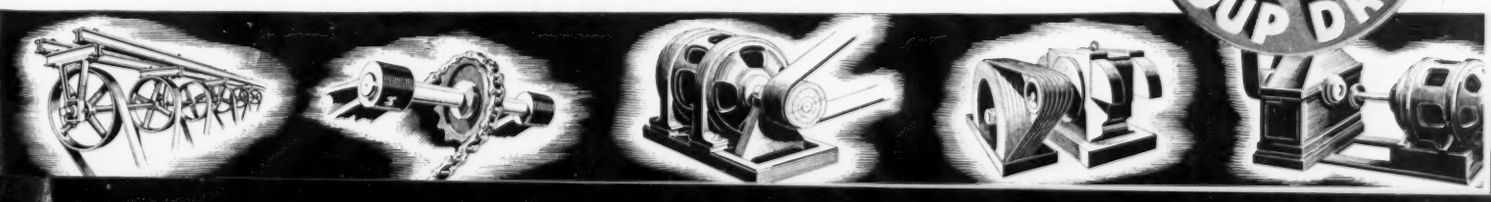
That is why the *Power Transmission Council, Inc.* was formed. In its function, it has surveyed the power-paths of many individual plants and industries. Its engineers — applying the principles of Modern Group Drive fairly and impartially—have effected worth-while economies.

This service entails no charge or obligation. The cost is borne entirely by manufacturers of Power Transmission Equipment as their contribution to greater industrial efficiency. Inquiries are welcomed from any manufacturer — large or small.

- ✓ National Organization
- ✓ Sound Engineering
- ✓ Regional Engineers
- ✓ Local Engineering Organizations
- ✓ Effective Merchandising

POWER TRANSMISSION COUNCIL, INC.
75 STATE STREET, BOSTON, MASSACHUSETTS

MODERN GROUP DRIVE PTC



KAUMAGRAPH DRY TRANSFERS

"See the mark"

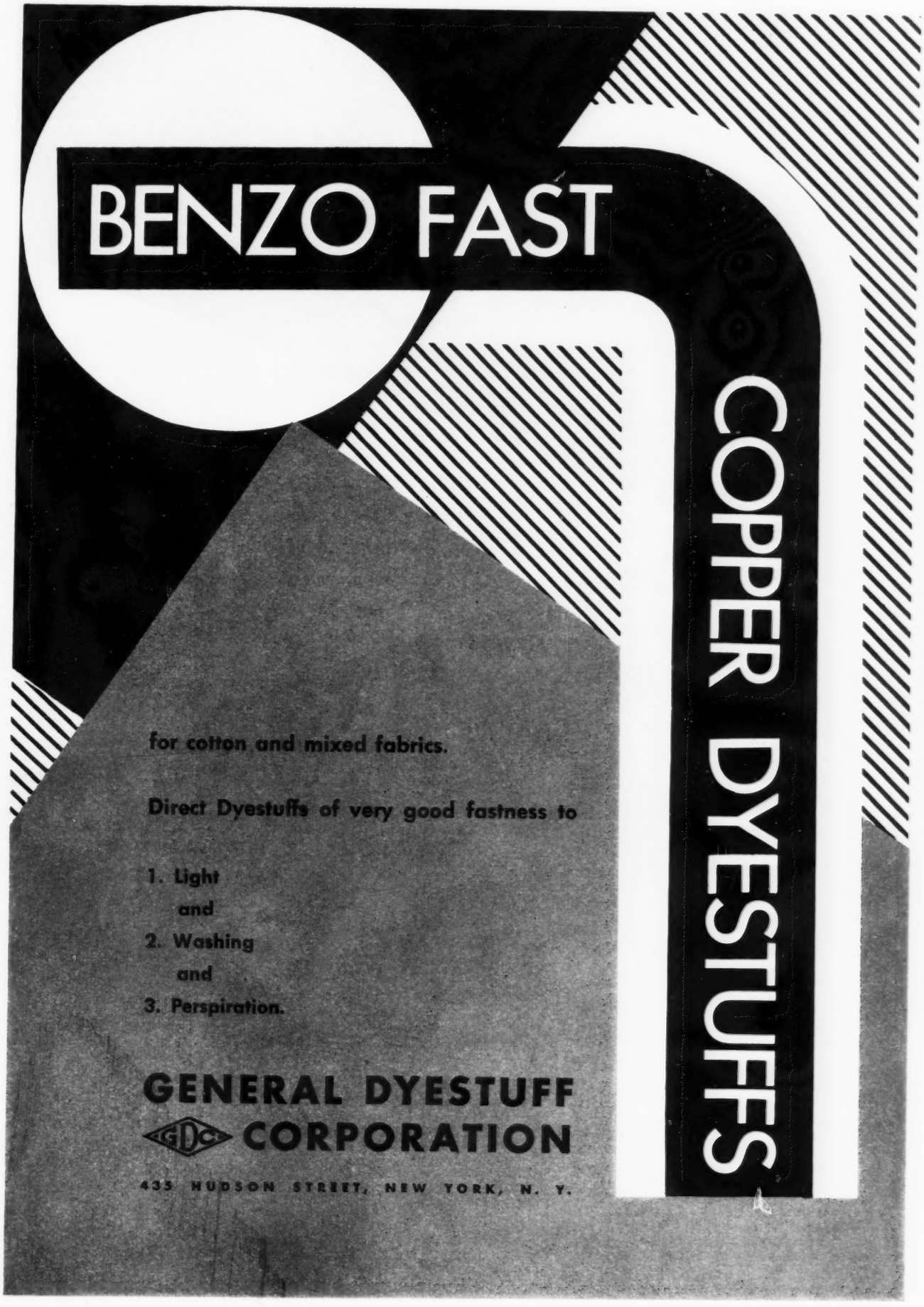
The consumer's recommendation carries weight. Identification that is informative, distinct and attractive meets the public demand and builds good will for the product.

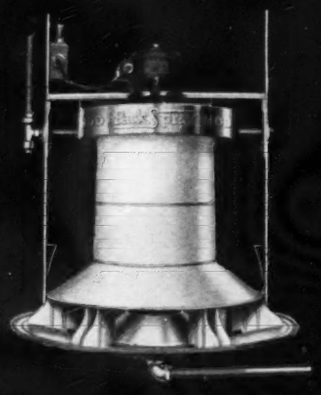
Kaumagraph Dry Transfers, designed and produced to meet any textile identification need, with Kaumagraph embossed seals and lithographed packing provide a complete service.

Identification Headquarters

KAUMAGRAPH 200 Varick Street, New York

Plants: New York City . . Paris, Ontario . . Manchester, England—Representatives in Principal Textile Centers of the World


BENZO FAST
COPPER DYESTUFFS
for cotton and mixed fabrics.
Direct Dyestuffs of very good fastness to
1. Light
and
2. Washing
and
3. Perspiration.
GENERAL DYESTUFF
GDC CORPORATION
433 HUDSON STREET, NEW YORK, N. Y.



HIGH DUTY

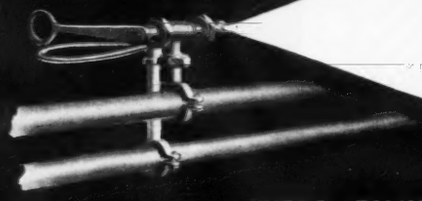
PSYCHROSTAT

CENTRIFUGAL

There's a lot of difference

between a high-posted cotton spinning room in Georgia, a low-posted worsted combing room in Maine, and a rayon weave room in Virginia.

Cure-all humidifying systems — built for the "average room" — sometimes prove satisfactory, often they fail.



TURBO ATOMIZERS

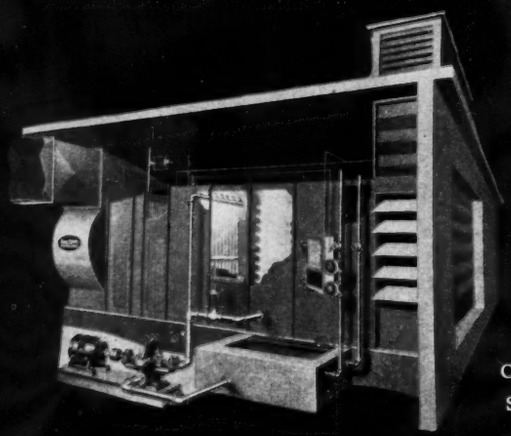
PARKS

Certified CLIMATE

means the right system for your mill. Any one of these types to select from. We recommend the type you need.

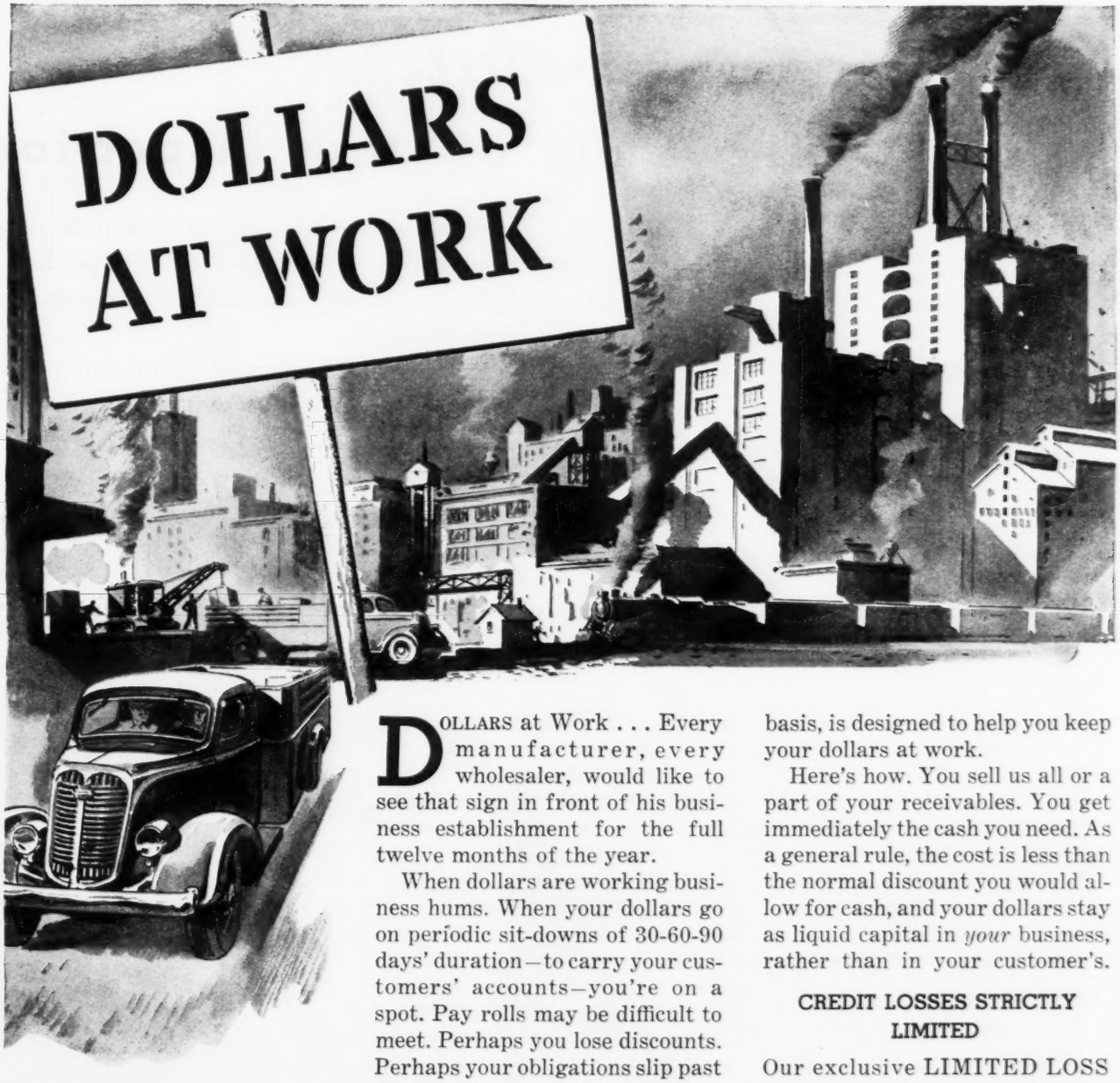
AUTOMATIC AIRCHANGER

A product for every need and locality. Superior design. Best materials and workmanship. Exclusive automatic control with the ParkSpray Psychrostat.



CENTRAL STATION

PARKS-CRAMER CO • FITCHBURG, MASS. • CHARLOTTE, N. C.



★ ★ ★

Take stock of your problems. Aren't there some situations, either temporary or recurring, which could be eased by a controlled cash position? Let us explain how we can help you.

★ ★ ★

DOLLARS at Work . . . Every manufacturer, every wholesaler, would like to see that sign in front of his business establishment for the full twelve months of the year.

When dollars are working business hums. When your dollars go on periodic sit-downs of 30-60-90 days' duration—to carry your customers' accounts—you're on a spot. Pay rolls may be difficult to meet. Perhaps you lose discounts. Perhaps your obligations slip past due. Perhaps you miss selling desirable new accounts.

KEEP CAPITAL LIQUID—AND WORKING

Commercial Credit Company's open account financing plan, operated on a "non-notification" basis, is designed to help you keep your dollars at work.

Here's how. You sell us all or a part of your receivables. You get immediately the cash you need. As a general rule, the cost is less than the normal discount you would allow for cash, and your dollars stay as liquid capital in *your* business, rather than in your customer's.

CREDIT LOSSES STRICTLY LIMITED

Our exclusive LIMITED LOSS clause guarantees you against all credit loss beyond a small agreed percentage. It is a new form of protection in open account financing. It makes this modern, flexible type of sound, industrial financing attractive to the most conservative business executives.

COMMERCIAL CREDIT COMPANY

BALTIMORE

NEW YORK CHICAGO PORTLAND, ORE. SAN FRANCISCO

"See-ability"

takes the flaws out of cloth inspection

Defects simply don't get by under the detail-revealing rays of Cooper Hewitt Mercury Lamps. Inspectors find that every thread seems magnified. There's no eye-fatigue from the long light source with its soft diffused light.

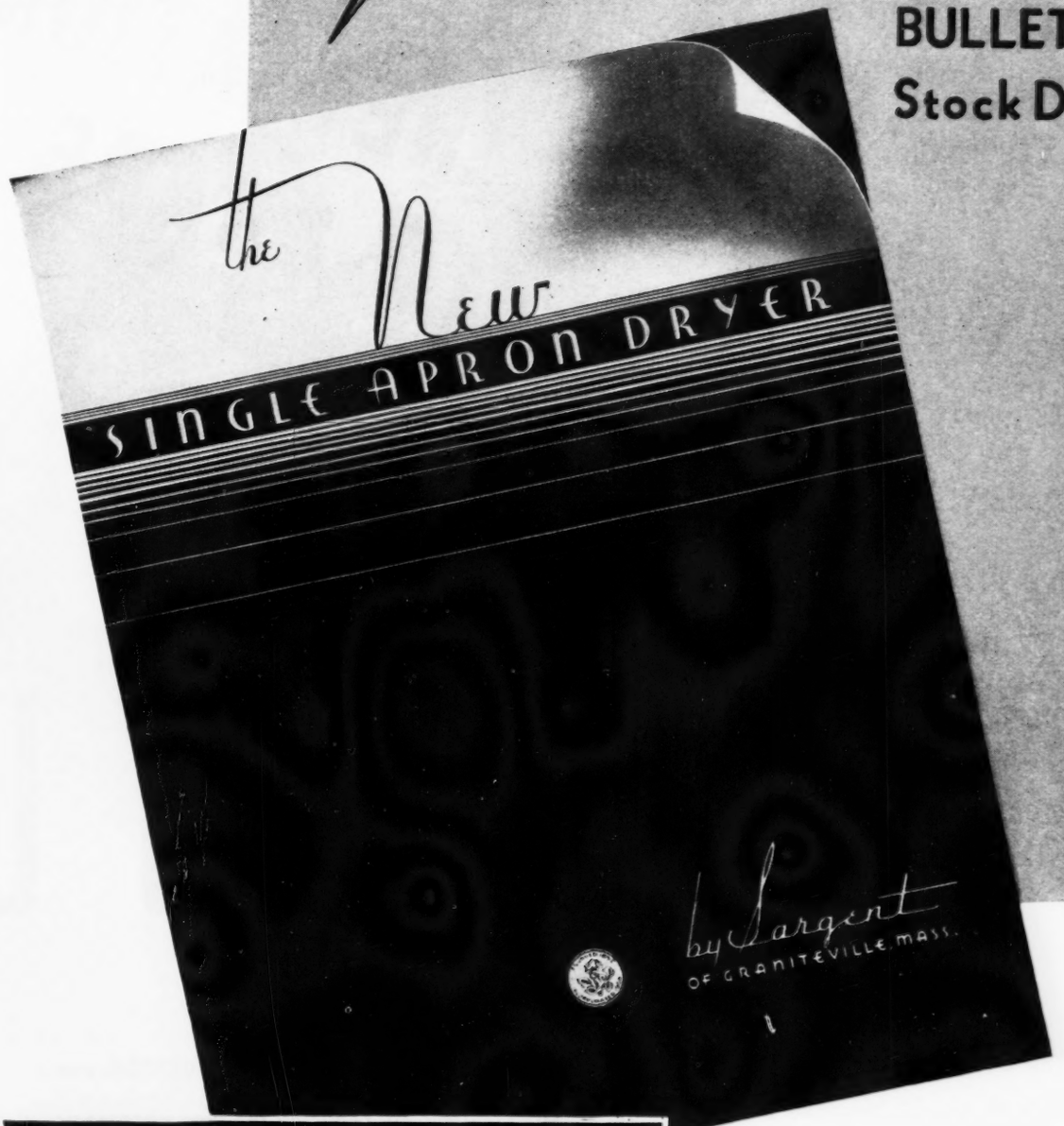
In the production of fabrics—night and day alike—the same detail-revealing rays help to reduce rejects to a minimum. Where color discrimination is important incandescent lamps in combination with Cooper Hewitts produce a light that closely simulates and blends well with daylight.

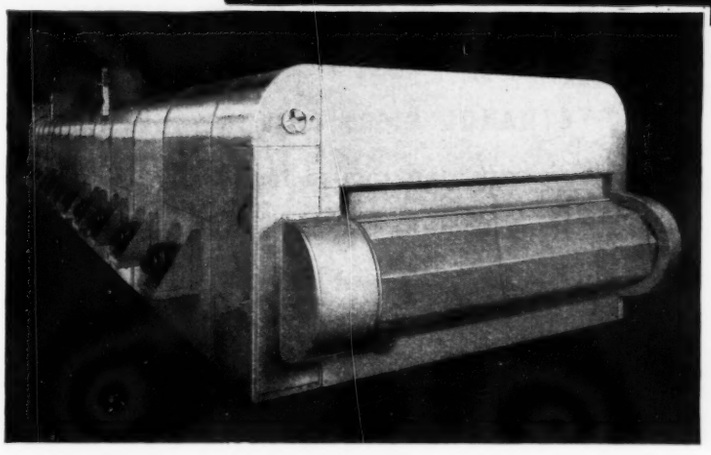
For complete information on this profit-producing light source write to the General Electric Vapor Lamp Company, 853 Adams Street, Hoboken, New Jersey.

GENERAL ELECTRIC
VAPOR LAMP COMPANY

858C

You Should Have This BULLETIN on Stock Dryers





An up-to-the-minute Dryer designed to give the largest capacities in a minimum floor space, and showing decided savings in horsepower and steam consumption. Available in both single and double fan types.

•

C. G. **SARGENT'S** SONS CORPORATION
GRANITEVILLE, MASSACHUSETTS

Now!

UNIFORM DYEINGS
COMPLETE PENETRATION
LESS TIME TO SHADE

With

TETRANOL
#1638

BETTER DYEING jobs are being done with **TETRANOL #1638** because of its speedy wetting out action.

COMPLETE PENETRATION of every fibre by the dye liquor is quickly accomplished, resulting in better exhaustion of the bath and even shade throughout the material being dyed.

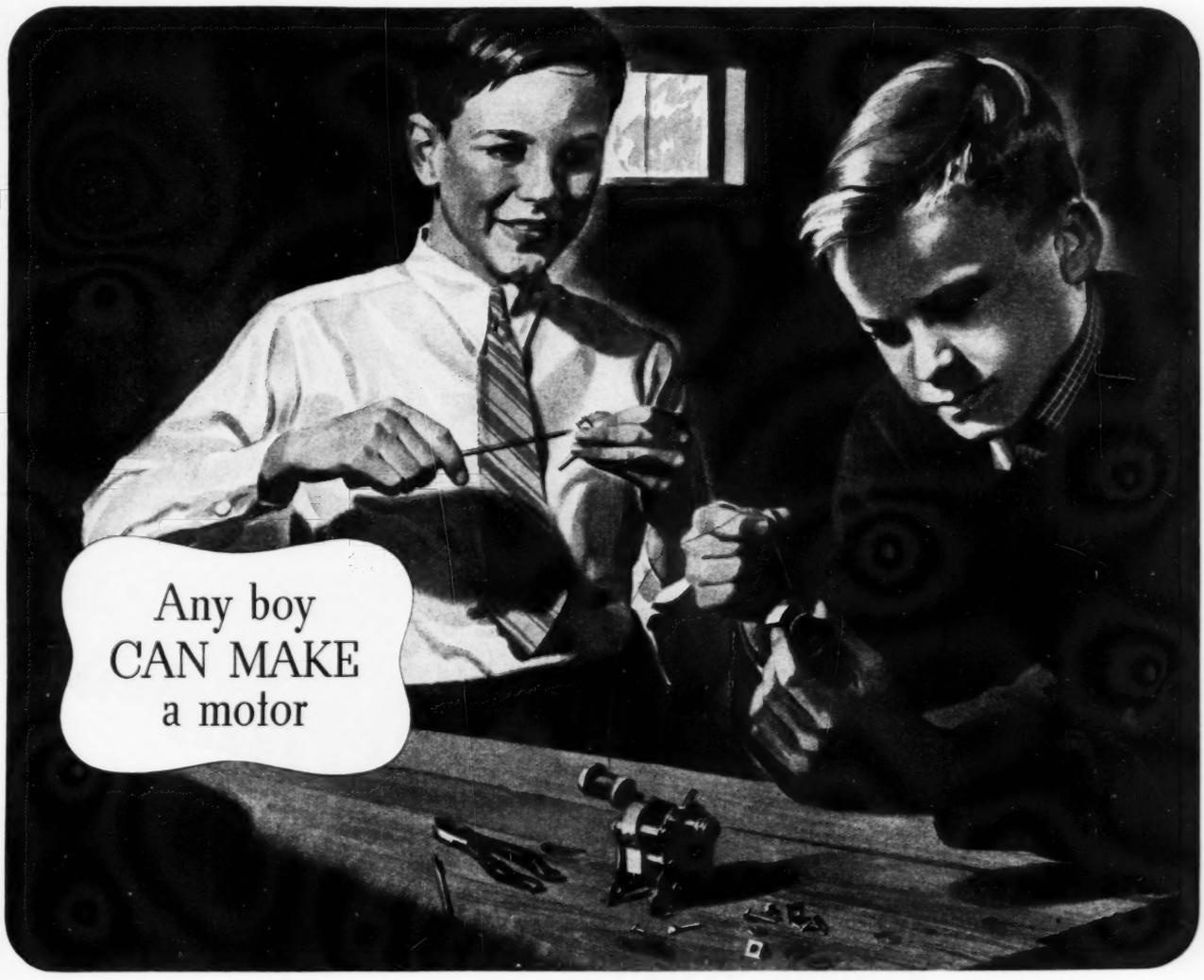
ECONOMY and **GREATER PRODUCTION** are also gained by *reducing the time* necessary to get the shade.

TETRANOL #1638 will increase the efficiency and reduce the cost of your dyeing operation, whether you are dyeing pieces, yarn, stock or hosiery.

ARKANSAS CO. INC.

233 BROADWAY NEW YORK

AN ADVERTISEMENT OF THE WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY · PITTSBURGH, PENNSYLVANIA



Fitting them to the world's work is a man-size job

FOR a thing so important to modern life, an electric motor is an amazingly simple device. Just a few pieces of steel and iron, wound with coils of wire. Any bright boy can follow instructions and make one that will run.

Yet the most romantic story ever told could be written about the electric motor. It runs practically every mechanical device in use today. It turns the wheels of industry — carries people to work from the suburbs to the topmost floors of tall buildings. The daily lives — even the livelihood — of most of us depend in some way upon it.

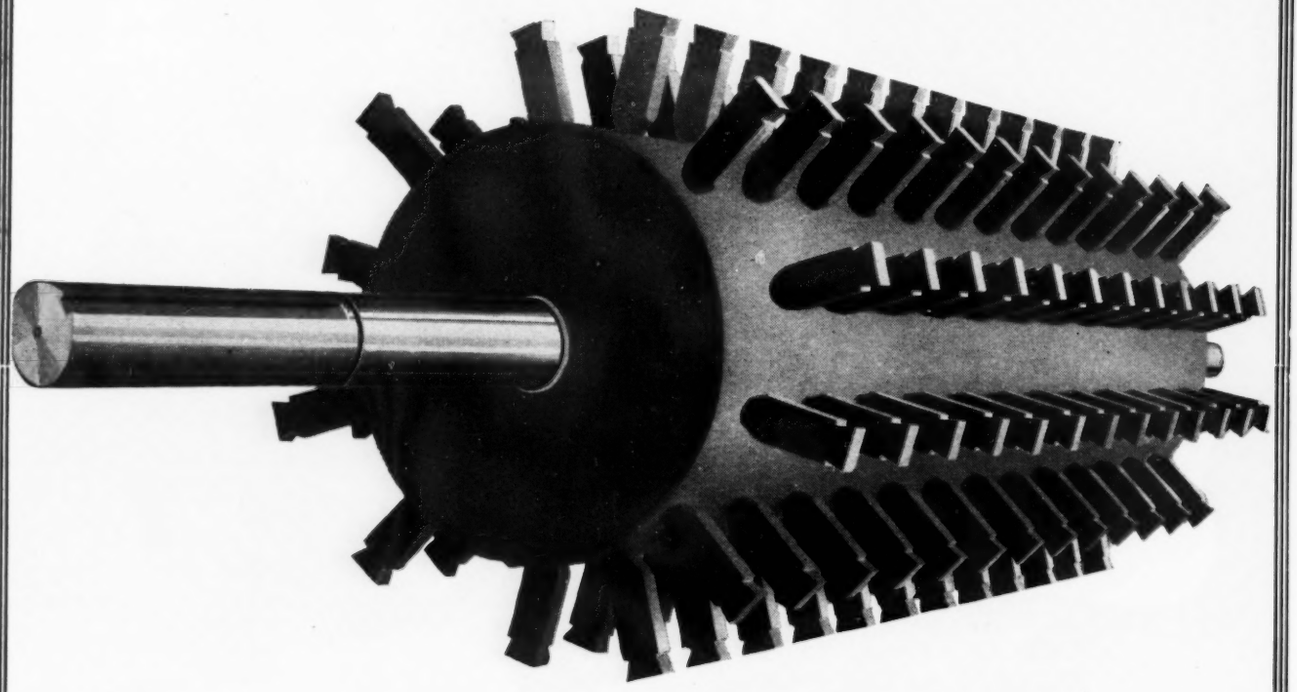
The job of fitting electric motors to the world's work is an exacting one. What makes it complicated is that every task, to be done efficiently, requires a certain kind of motor. Westinghouse, for example, offers over 20,000 different types, sizes and ratings. If none of these is exactly what is needed, a special model will be built to order.

The electric motor is "bread and butter" to Westinghouse — and to just about everyone else. Fully conscious of its responsibility, Westinghouse research continues each year to seek improvement in motor design — so that the world's work may be done better, faster, and at less cost.

Westinghouse

The name that means everything in electricity

THE ALDRICH
MULTI-BLADE CYLINDER BEATER



Takes out more and dirtier motes than a blade beater.

Does not shatter motes and leaf, and therefore reduces the specks and pin trash in the laps.

These beaters advantageously replace blade beaters wherever used.

They are particularly good in the first sections of single process pickers.

AldricH MachinE

Greenwood, **WorkS** South Carolina

Certified STEEL HEDDLES manufactured by a process insuring smoothness of eye, long wear, high tensile strength, durability and corrosion resistance of plating. Heddles purchased in open market are examined and tested periodically by PITTSBURGH TESTING LABORATORY as an independent check upon Emmons' standards of manufacturing control.
EMMONS LOOM HARNESS COMPANY LAWRENCE, MASSACHUSETTS
Inspected and approved
"Certified" Steel Heddles are inspected from start to finish of their manufacture in order to control their high standard of quality.

CHECK and DOUBLE CHECK

for the "CERTIFIED" HEDDLE'S UNIFORMITY

Last year Emmons went to the Pittsburgh Testing Laboratory, had them buy heddles in the open market, test them, and report to us — so that we, and you, would have a positive check on our manufacturing quality.

This year — in addition to the P.T.L. reports — Emmons will intensify its *own* Control of Quality. Not only will the finished product be tested independently, but Emmons men will check up on every production operation, from the raw material, through stamping, polishing, plating, and other processes. This is an inspection job that will insure every mill man the uniform quality he gets when he purchases Emmons "Certified" Steel Heddles.

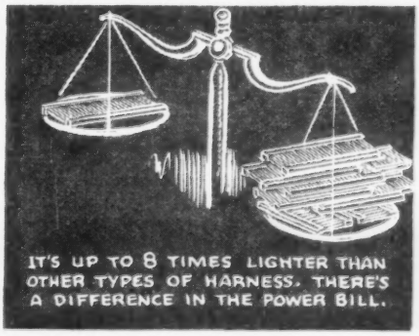
Know what you buy. Buy the heddles with the "Certified" Tag and the Inspected & Approved Seal. Your order, by mail, telephone, or telegraph to our plant in Lawrence, Mass. will receive prompt attention. Stocks on hand.

Emmons

"CERTIFIED" STEEL HEDDLES

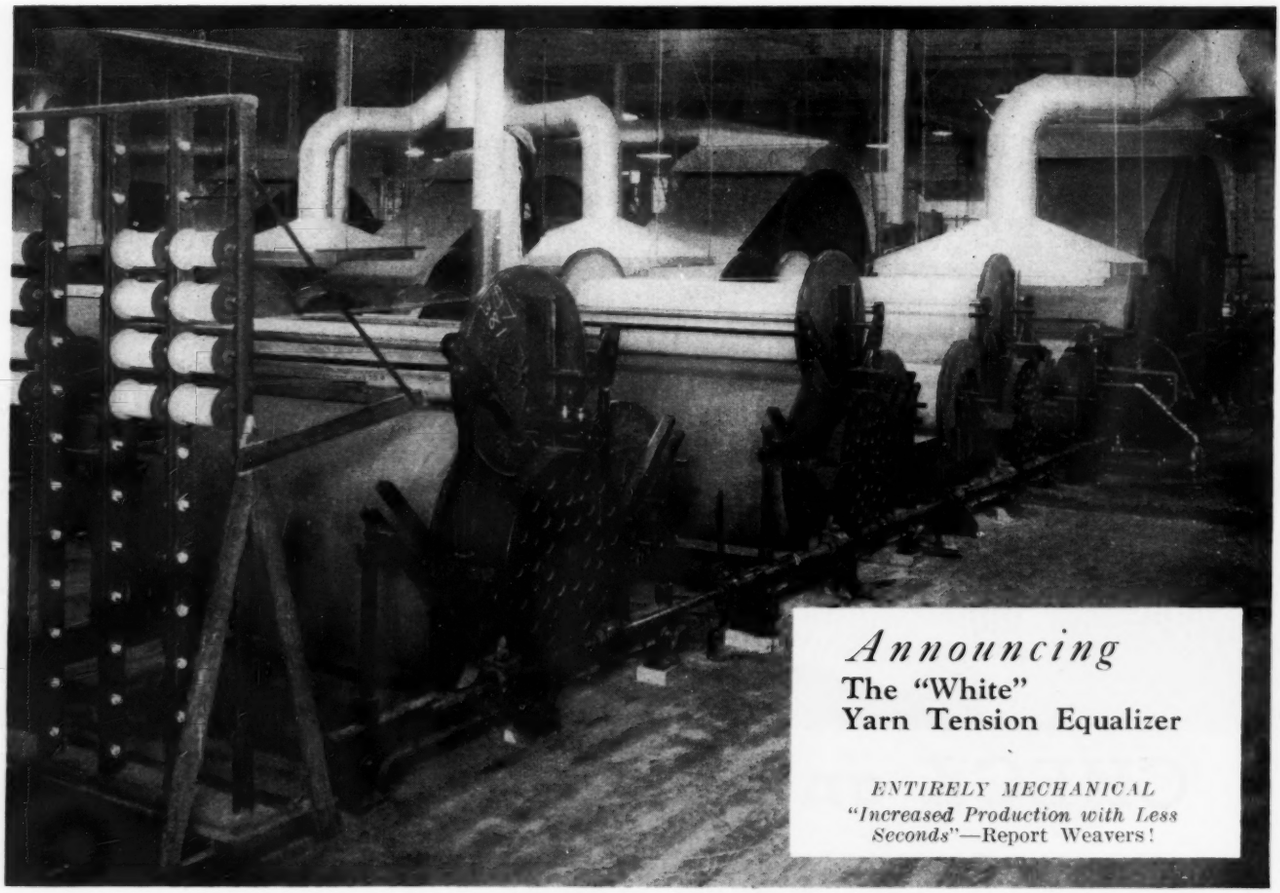
CHAFELESS.. LIGHT-WEIGHT.. LONG-LIVING EMMONS "CHAFELESS CORD" COTTON HARNESS

"CHAFELESS CORD" COTTON HARNESS WON'T ROUGH YARN. YOU'LL FIND LESS "FLY" UNDERNEATH THE LOOM


IT'S UP TO 8 TIMES LIGHTER THAN OTHER TYPES OF HARNESS. THERE'S A DIFFERENCE IN THE POWER BILL.

IT'S BUILT FOR LONG-WEAR- LONG STAPLE COTTON, 5 COATS OF VARNISH - HUMIDITY-PROOF DRESSING.

"CERTIFIED" STEEL HEDDLES, "MULTIPLIED YARN SPACE" REEDS, "CHAFELESS CORD" COTTON HARNESS — described in Textile World Yearbook



This is a positive driven slasher creel, producing uniform tension control!

The "White" Yarn Tension Equalizer was perfected (and patented) by U. L. White and developed by those familiar with the operation and purposes of the slashing process and who have felt the great need of this new machine. It is based on a well known and accepted mechanical principle.

Study the photograph and you will realize the simplicity and effectiveness of the "White" Yarn Tension Equalizer. This device is entirely mechanical in operation, with few adjustments to make. Quality control of the sized yarn is assured.

Placed in position behind the sizing vat of the slasher, the Equalizer drive shaft is coupled to the side shaft of the slasher at the sizing vat and is provided with the correct gear train to synchronize the equalizing delivery drum with the parts of the slasher system.

Note the warp beams in place on the equalizing drum. When the slasher is running, the warp yarn is rolled from the drum in the exact amount required, regardless of the diameter of the roll of the warp and the speed of the slasher. The yarn is removed from the beams without tension or strain. It is a positive driven slasher creel! Strain on the ends due to intermittent operation of the slasher is absent, practically eliminating breakage and loose ends. The stretch of the yarn can be regulated to the desired amount.

Weights, formerly used to brake and prevent overtravel of the warp beam, are eliminated, along with the stretch that such weights produced in the yarn.

The same amount of yarn is removed from all beams which are emptied at the same rate, reducing the waste yarn on the beams to a minimum. The warp yarn is slack when it enters the sizing vat, with the result that absorption of the size is uniform. The heat from the cylinders of the slasher penetrates and dries the yarn at a faster and more uniform rate.

Those who are already using the "White" Yarn Tension Equalizer inform us that their production has been increased and with less seconds. It will be to your advantage therefore to look into this new product and have the "White" Yarn Tension Equalizer installed in your plant.

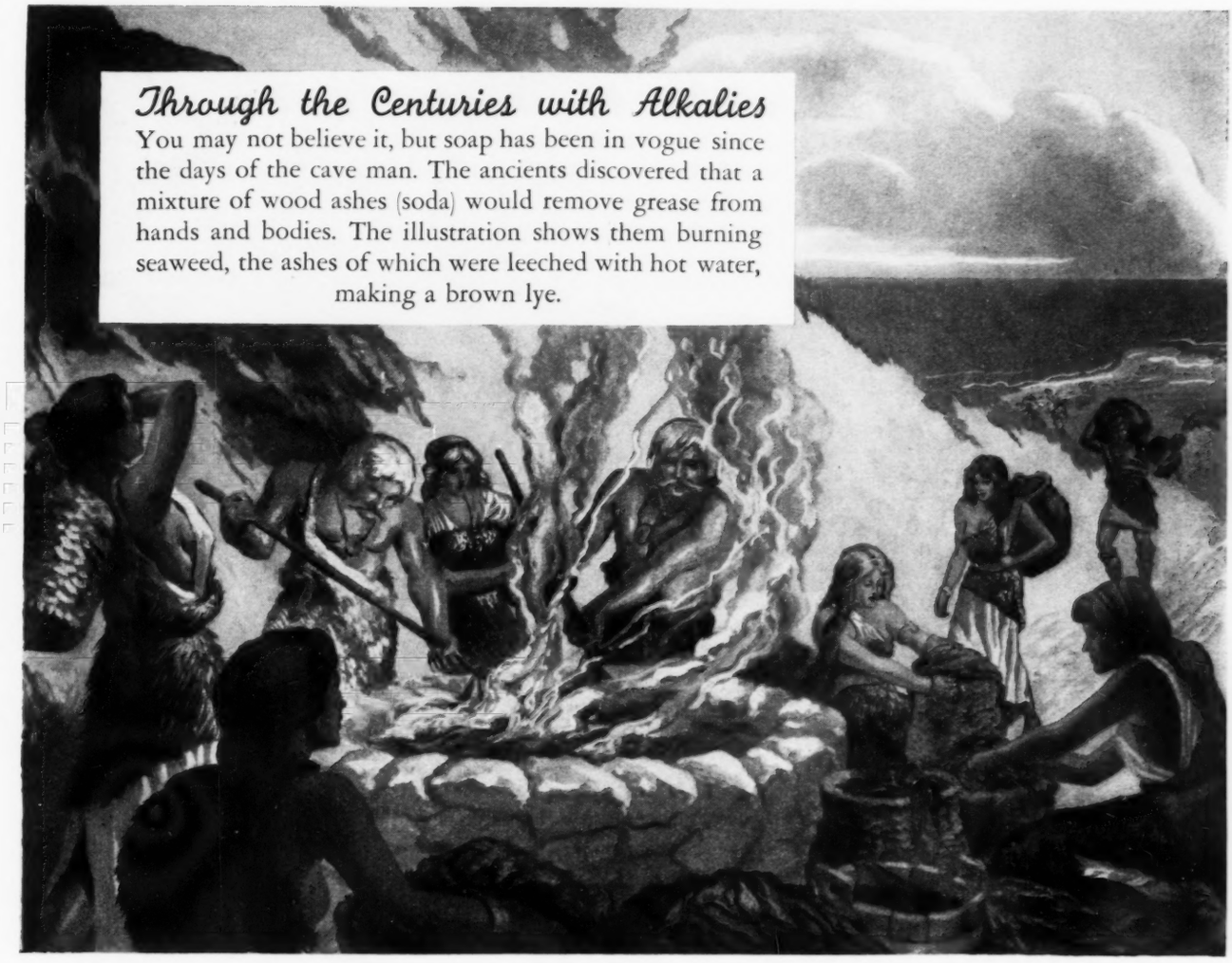
TELEPHONE TODAY - WRITE TODAY!

Also manufacturers of West Point Loom Beams, West Point Beam Racks, West Point Spiral Gears, West Point Sizing Vats, and other textile machinery and repair parts.

WEST POINT FOUNDRY & MACHINE CO.

(Batson-Cook Company, Owners)

WEST POINT, GEORGIA



Through the Centuries with Alkalies

You may not believe it, but soap has been in vogue since the days of the cave man. The ancients discovered that a mixture of wood ashes (soda) would remove grease from hands and bodies. The illustration shows them burning seaweed, the ashes of which were leeched with hot water, making a brown lye.

Users of COLUMBIA Soda Ash, Caustic Soda, and other products know that here are man-made products which are the finest obtainable. To others, may we suggest that you lose no time in discovering for yourself the extreme uniformity, . . . the freedom from variability . . . and from impurities . . . that characterizes all COLUMBIA ALKALI CORPORATION products. And COLUMBIA Service has been found just as dependable as the alkalies which bear its name.

SODA ASH
CAUSTIC SODA
SODIUM BICARBONATE
MODIFIED SODAS
LIQUID CHLORINE
CALCIUM CHLORIDE

COLUMBIA

THE COLUMBIA ALKALI CORPORATION

BARBERTON • OHIO

NEW YORK CHICAGO BOSTON PITTSBURGH
CLEVELAND CINCINNATI ST. LOUIS MINNEAPOLIS

Aye, SIR

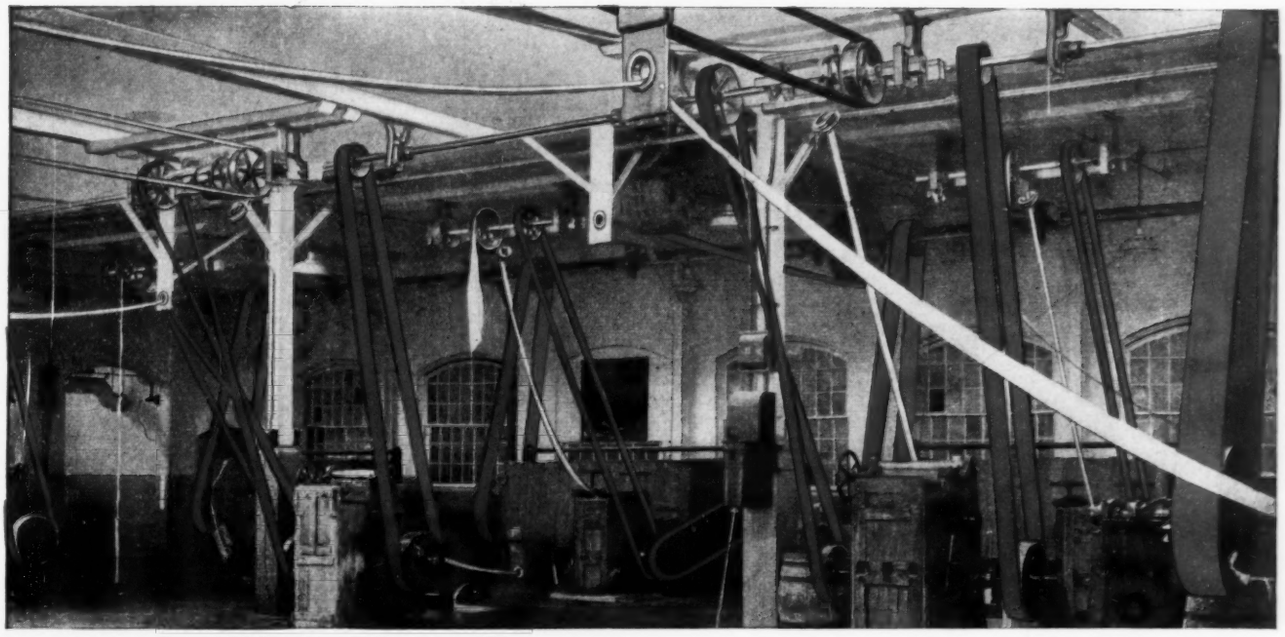
AND A SAVINGS, TOO
with
JACOBS
Individualized

- LABELS
- BANDS
- TICKETS
- STICKERS
- HANG TAGS
- BOX TOPS
- RIDERS

an Inquiry will not obligate you

THRIFT

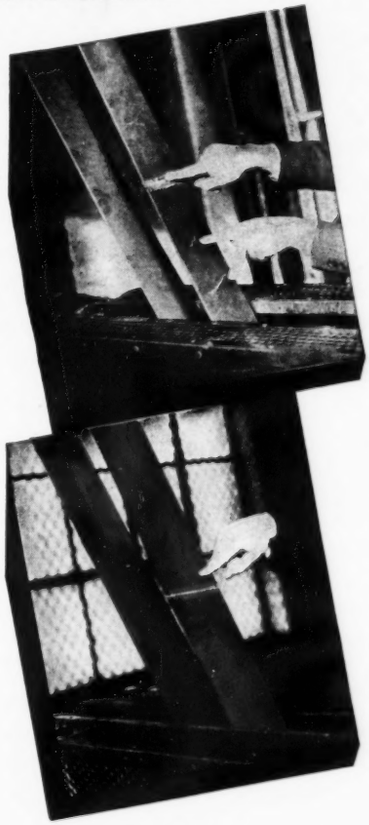
JACOBS
GRAPHIC ARTS COMPANY
CLINTON, S. C.



Condor Compensated Belt in a prominent Southern finishing and bleachery mill. Superintendent states that Condor Compensated has proved superior for their use after many tests. Parock Pot Eyes are also shown in this installation.

MAINTAIN THE PACE FOR PROFIT

Condor Compensated PATENTED



The Low Tension Rubber Belt With Equalized Ply Stresses

As production costs rise, efficient, economical power transmission becomes increasingly important. Profit becomes increasingly dependent on constantly uniform power that wastes no time . . . . produces no "seconds."

To maintain the pace for profit, textile mills have turned to Condor Compensated Belts. Unlike ordinary rubber belts Condor Compensated is built to equalize strains and fatigue at the arc of contact — where the destructive work is done—because each ply is compensated to bear its share of the load.

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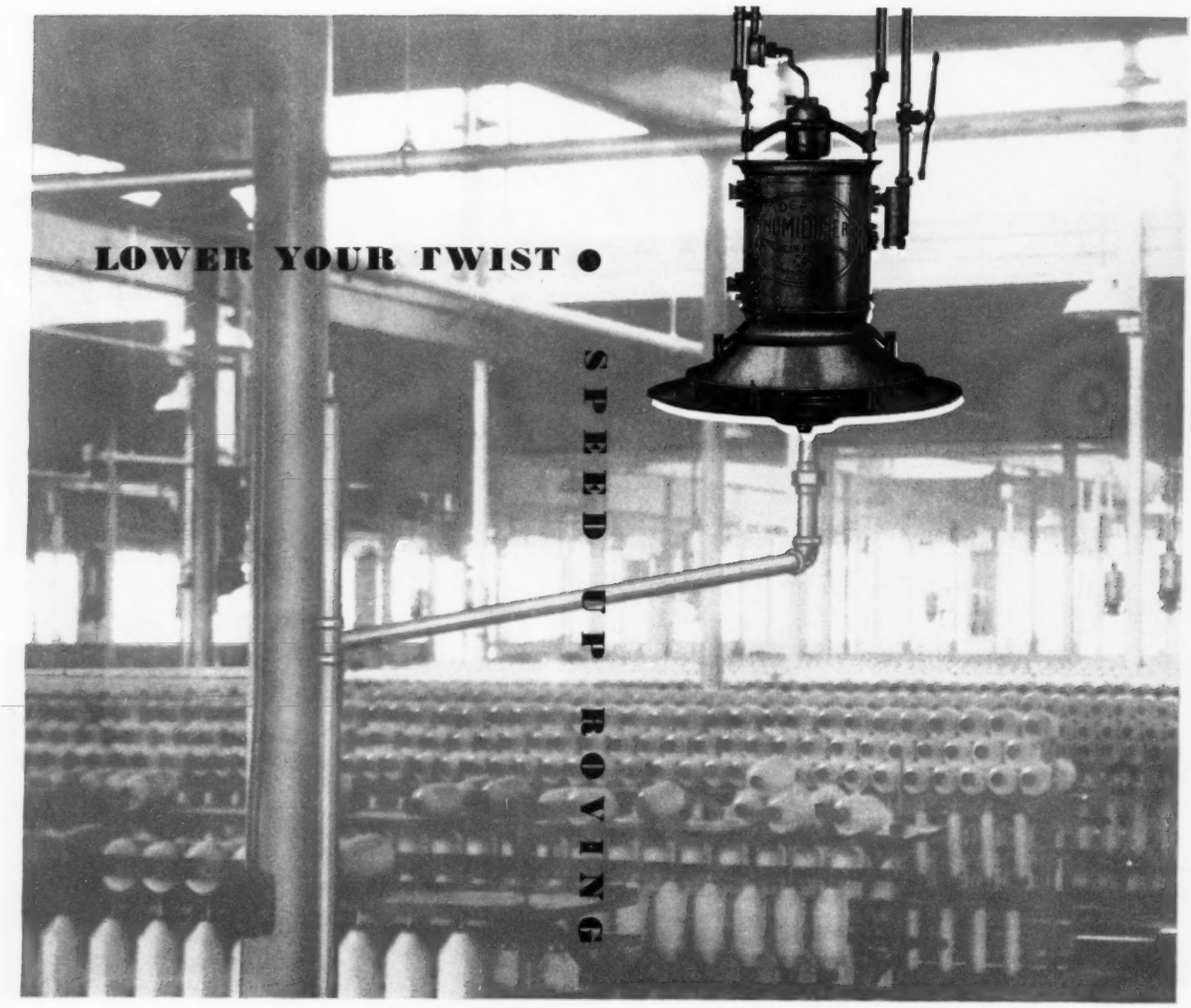

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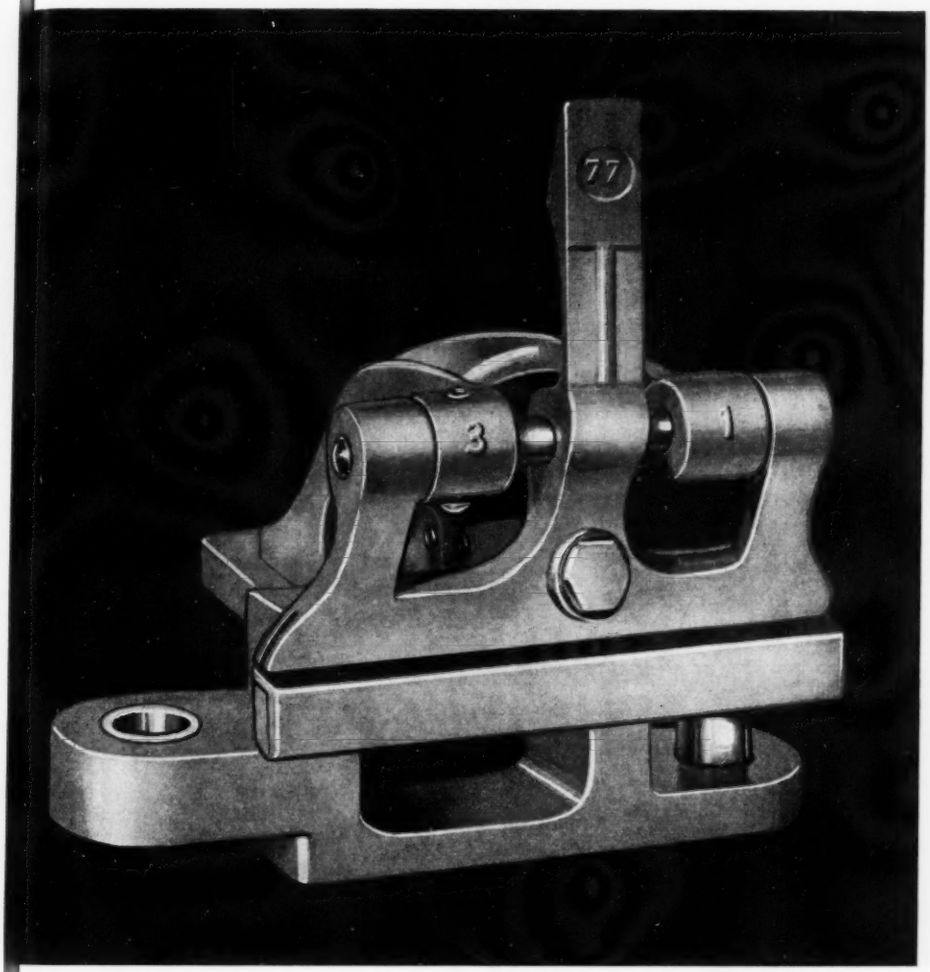

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COTTON

Vol. 102 No. 1

JANUARY, 1938

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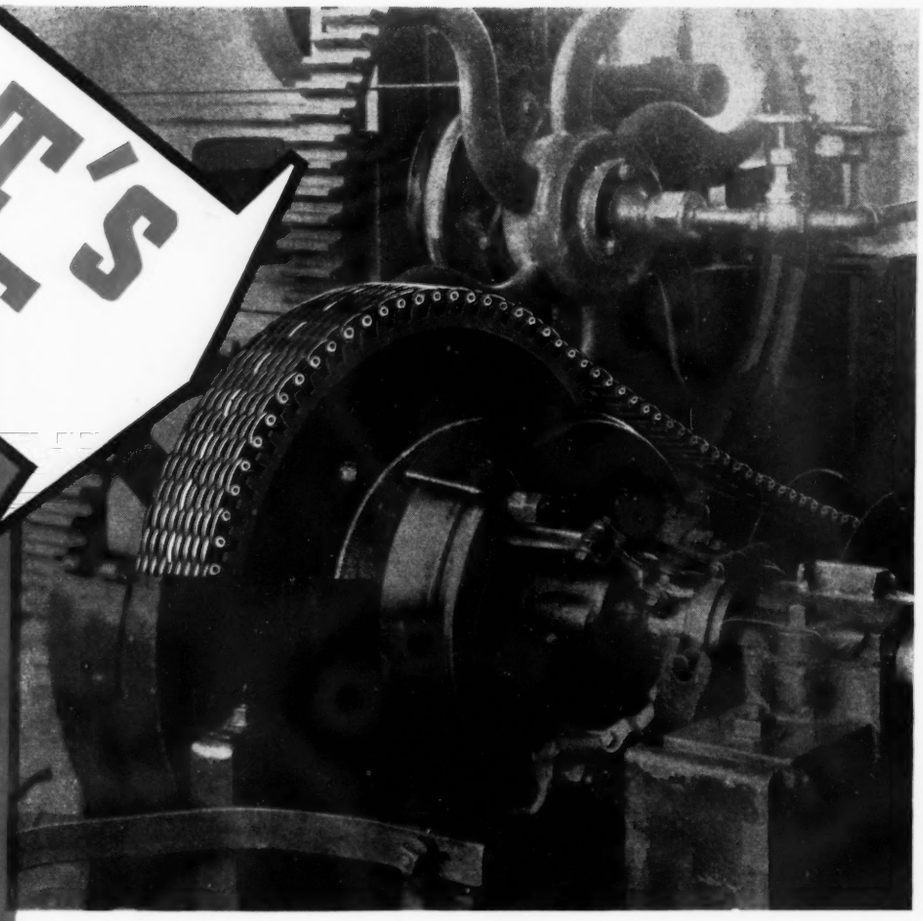

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A Page from the Publishers

Cross-Index of Articles Published in 1937 Now Ready

A complete cross-index of the leading articles and practical discussions published in COTTON during 1937 has been prepared, and copies will be sent to any readers requesting them.

Each leading article or practical discussion letter published during the year is listed under the proper subject or department head. For example, all articles pertaining to Carding have been grouped together, each listing giving a description of the article and showing the month and page in which it may be found.

So many times a reader will vaguely recall a certain article he had seen but is unable to locate it immediately. The cross-index will solve that problem. Frequently, a discussion of a subject will extend over several issues during the year. The cross-index shows how to locate every discussion of a topic readily.

Of course, a file of the 12 issues of COTTON published during 1937 is essential to the proper use of this index. Unfortunately, it is now impossible for us to supply copies of 1937 issues, to complete any incomplete sets, beyond a limited number. But any reader who has preserved his copies of the magazine will find the index of invaluable aid, and everyone is invited to ask for a copy.

This index clearly shows the tremendous amount of valuable material published in this magazine during a year, and how, with the index as a guide for convenient reference, a year's edition of COTTON may constitute within itself a library of fresh, practical manufacturing information, which could hardly be duplicated otherwise.

Furthermore, the character of most of the material published in COTTON makes it useful to a mill man for an indefinite period after its actual publication. A given discussion which might not appeal to any one man at the time of publication may later prove of tremendous value to him. This index provides a means of making the monthly issues of more permanent value in these respects.

Similar indexes on the years 1934, 1935, and 1936 are available, and you are invited to request an index on any year for which you have a file of the magazine. Send your request to: Editorial Department, COTTON, 1020 Grant Building, Atlanta, Ga.

Modernization and Maintenance

For several years, the February issue of COTTON has emphasized, from various angles, the subjects of Modernization and Maintenance in textile plants. The same theme will be used in next month's issue—and the editors plan a special treatment of the subject. These haidmaidens of progress and efficiency are always of prime necessity. Our program of concentrating interest and thinking on the subject is an effort to review accomplishment and stimulate action.

Two Descriptions of Cotton

Cotton—the plant, we mean, not the magazine—has been called all manner of things by different men, depending on the point of view. Here are two widely differing definitions, the one sublime, by the immortal Henry W. Grady, the other representing the other extreme but perhaps in keeping with the feeling of many who deal with the fleecy staple in a practical way. We believe you will enjoy them:

The Cotton Plant

BY HENRY W. GRADY

What a royal plant it is! The world waits in attendance on its growth. The shower that falls whispering on its leaves is heard around the earth. The sun that shines on it is tempered by the prayers of all people. The frost that chills it and the dew that descends from the stars is noted, and the trespass of a little worm on its green leaf is more to England than the advance of the Russian army on her Asian outposts.

It is gold from the instant it puts forth its tiny shoot. Its fiber is current in every bank, and when loosing its fleece to the sun, it floats a banner that glorifies the field of the humble farmer; that man is marshalled under a flag that will compel the allegiance of the world, and wring tribute from every nation on earth. It is the heritage that God gave to this people forever as their own when He arched our skies, established our mountains, girt us about with the ocean, loosed the breezes, tempered the sunshine and measured the rain.

Ours and our children's forever. As princely a talent as ever came from His hand to mortal stewardship.

Another Description of Cotton

Cotton is the overcoat of a seed that is planted and grown in the southern states to keep the producer broke and the buyer crazy.

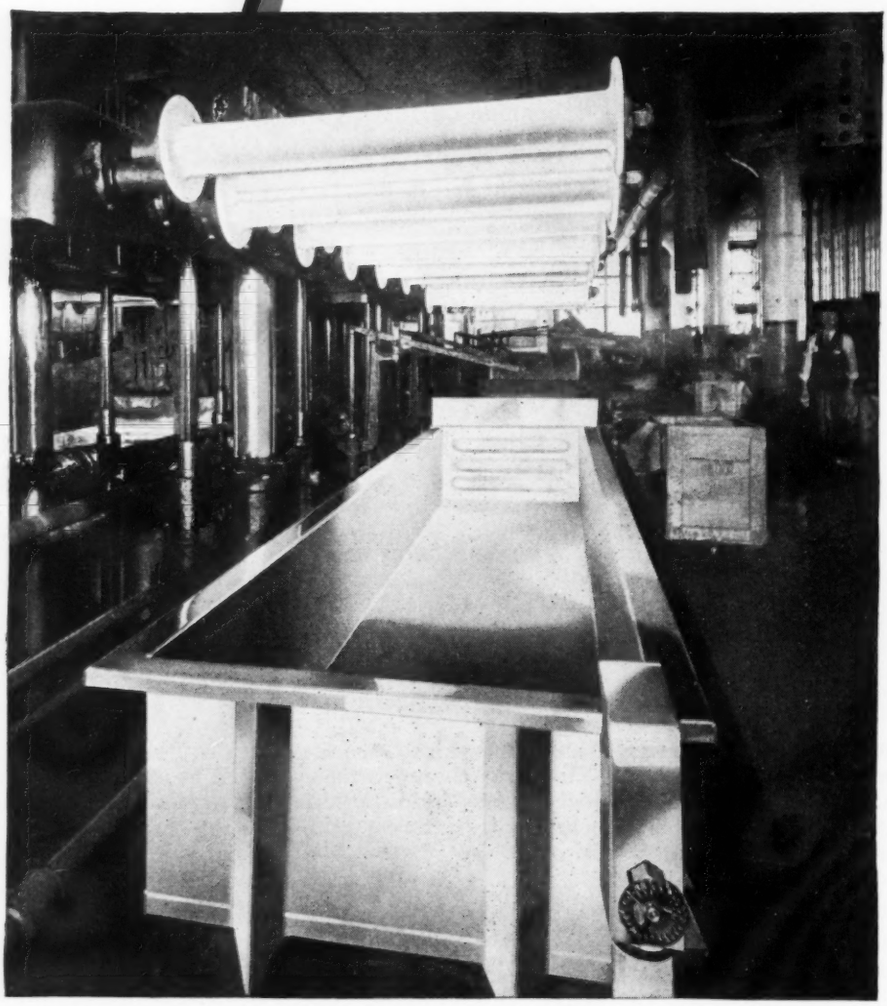
The fiber varies in color and weight, and the man who can guess nearest the length of the fiber is called a cotton man by the public, a fool by the farmer, a poor business man by his creditors.

The price of cotton is determined in New York, and goes up when you have sold and down when you have bought.

A buyer working for a group of mills was sent to New York to study the cotton market, and after a few days' deliberation, he wired his firms to this effect: "Some think it will go up and some think it will go down—I do too. Whatever you do will be wrong—act at once."

Cotton is planted in the spring, mortgaged in the summer, and left in the field in the winter. You can and you can't; you will and you won't—you will be damned if you do, and be damned if you don't.—*Anonymous.*

"Troubles Stopped



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Vol. 102
No. 1

COTTON

January,
1938

Quantitative Controls in Textile Finishing

By R. E. Rupp, Pacific Mills, Lyman, South Carolina

THE EARLIEST ATTEMPTS at experimental chemistry were entirely qualitative and not quantitative. The results of reactions between substances were all-important, and the effect of the quantities involved was given little consideration. It is a matter of historical record that the progress of this science was painfully slow until Lavoisier brought the idea of quantities in experimental work to chemistry. Coincident with the application of this idea, the science progressed rapidly and achieved the almost magical results which we accept as commonplace today.

Criticism has been thrown at the textile finishing industry, and too often with justice, that it has not progressed beyond the qualitative stage. That is, the kind or nature of materials is overemphasized, while quantities or concentrations are neglected. Comparisons are drawn between two acids or alkalis for a particular purpose without sufficiently taking into account the most effective amount or concentration. As a result of this comparison, one or the other is declared better, when they may be equal or even the reverse true, if the quantities had been sufficiently studied. Starches and oils in finishing are frequently graded qualitatively when a closer look into quantities involved might mean complete reversals of decisions.

It may be this lack of quantitative information that has led to the wide diversity of opinions between practical mill men as to the relative merits of various materials and methods in the manufacture and processing of textiles. All are correct in their various observations as to the comparisons made, but very wrong in not exploring to the limit the effect of quantitative variations for each material.

Quantities that frequently go widely astray are concentrations of solutions. Where pounds or ounces of starch or color, or gallons or quarts of oil or pastes are used, the percentage errors are relatively small. In cases where solutions are used continuously and fed by a high concentration solution or material, the problem of maintaining a low percentage fluctuation is more difficult. It is not unusual to find instances where a concentration is maintained with variations as great as 200 per cent. Acid solutions that are to be 1 per cent frequently fluctuate between .5 per cent and 2 per cent. Chlorine solutions at 1 g. per liter may show even wider variations, and oxidizing agents such as bichromate and acids are generally without control as to their oxidizing power.

With very few exceptions, all solutions used in textile processing can be automatically controlled. In most cases it is not absolutely necessary to automatically control solutions. A careful and skilled operator with frequent checking and untiring vigilance will control a solution so that no appreciable improvements in results or economy of materials will result from a mechanical control. On the other hand, many examples exist in the textile industry where very improved processing at a much lower cost has followed the installation of an automatic mechanical control.

Most automatic controls depend on that borderline science between physics and chemistry, and it is here that we find the principles for many of the automatic control devices. Specific gravity is one of the most elementary physical properties of a solution and one that is widely used in hand control of solutions. Its application to continuous automatic control is infrequent in the textile industry for a number of reasons. The control is not accurate enough. In dilute solution, the changes in specific gravity are not great enough to control with a low percentage error. For example, the difference between 1 per cent and 2 per cent sodium hydroxide solutions is about .011° Sp. Gr., and between 1 per cent and 2 per cent sulphuric acid solutions .006° Sp. Gr. Few, if any, instruments for

AN outstanding southern finisher here describes clearly some practical means for quantitative control in textile finishing. This discussion will be followed by a description of controls based on electric potentiometer measurements . . . . .

automatic specific gravity control are offered by manufacturers of control instruments. For the most part solutions are best controlled by automatic equipment based on other principles.

Nevertheless, there are some instances where gravity controls may be used advantageously, generally in high concentration solutions, where the physical-chemical laws no longer hold true. For example, low concentrations of caustic soda are best controlled by conductivity methods, but solutions of caustic soda have a maximum conductivity of about 21 per cent NaOH. At concentrations both higher and lower the conductivity is less, hence conductivity is no longer a measure of concentration. Furthermore, in this range changes in concentration make a very small change in the electrical conductivity. For these higher concentration solutions, conductivity controls are impractical, and in several instances specific gravity controls have been built and installed with success.

Instruments for Quantitative Analysis

Designs of two such instruments that have found practical application to high concentration solutions with satisfactory results are illustrated in the accompanying sketches, along with the following descriptions:

In Fig. 1 the control is entirely outside the solution, and in principle, is a continuous sampling, and testing for specific gravity. The solution, *S*, is pumped, *P*, at a constant rate of speed through a

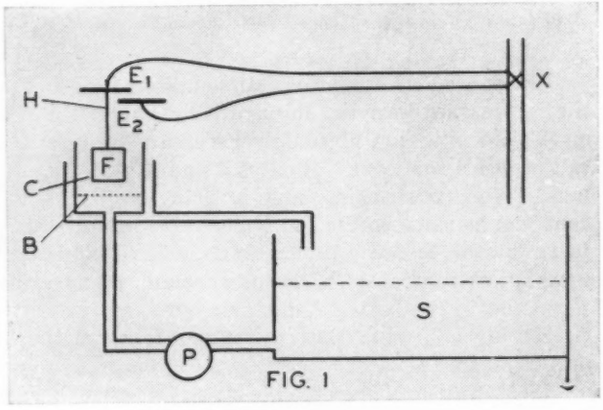


FIG. 1

chamber, *C*, which contains a hydrometer, *F*, and then overflows and returns to the main tank, *S*, through the return line. As the specific gravity of the solution varies, the hydrometer, which is equipped with electrical contacts, E_1 and E_2, will rise or fall. If the solution becomes weak the circuit is closed as a result of which the valve, *X*, is opened admitting a concentrated solution from a storage tank until the solution, *S*, reaches the proper concentration. This concentration by its higher specific gravity causes the hydrometer to rise breaking the circuit, E_1—E_2, and causing the valve, *X*, to close, allowing no more concentrated solution to enter the system until the hydrometer again falls.

The weakest feature of this device is that a constant and steady flow through the chamber, *C*, is essential for the successful operation of this unit. A screen or plate with holes at *B* will help make a uniform upward flow, but the rate from the pump must also be constant or changes in velocity or flow will affect the position of the hydrometer as well as the specific gravity. The hydrometer must be perfectly balanced and guided in such a fashion that it will not bind against these guides. Controls of this sort will operate with an accuracy of .003° Sp. Gr. or in terms of textile solutions, with an error of about 1° Twaddell. The sensitivity of the instrument depends on the hydrometer, and is sensitive in accordance to the ratio of the volume of the float, *F*, to the weight per unit of length of the stem, *H*. If it becomes necessary to change the concentration of solution, *S*, it can readily be done by changing the position of the contacts E_1 and E_2, or by changing the weight of the hydrometer, *F*.

In the device shown in Fig. 2 the principle is identical, but the application has been changed to elimi-

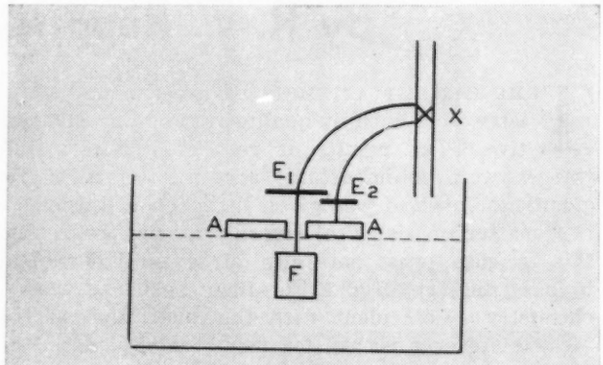


FIG. 2

nate the feature of the hydrometer in a flowing solution. In making this change, the mechanism is in the solution itself, which brings new objections. However, both mechanisms are practical, and operate successfully with reasonable care and attention.

In Fig. 2, the hydrometer is in the tank of the solution to be controlled and the electrical contacts, E_1 and E_2, are floated on the surface, *A*—*A*, of the solution so as to rise and fall with the solution, and maintain their same relative position to the hydrometer, regardless of the liquid level. The operation of admitting concentrated solution, as needed, when determined by the hydrometer, is identical with the procedure as described under Fig. 1 above. In these controls, an independent temperature control is advisable for accuracy if the solution is subject to temperature variations.

Dilute solutions of acids and alkalis are controlled by means of the variation of their electrical conductivity as their concentration varies. This principle of control has been applied very successfully, is widespread and quite generally understood. Briefly it is the application of the Wheatstone bridge for measuring the electrical conductivity and keeping the solution a constant concentration, by maintaining a nearly constant conductivity through automatic additions of a concentrated solution as the measured solution is depleted.

Fig. 3 is a simple diagram showing the outline of this well-known conductivity measuring apparatus.

The points, *P*, are connected with a source of electrical power and the current is divided at *A* in proportion to the resistances R_1 and R_3. If R_2 and the resistance formed by the electrodes *E* in the solution to be controlled are in a similar balance, the circuit is completed at *B* without any current passing *through* the galvanometer at *G*. But if the concentration of

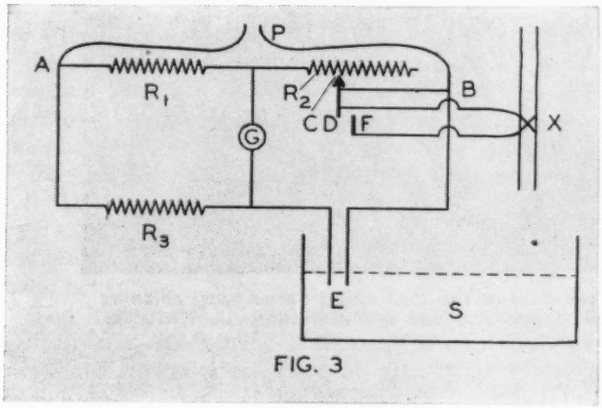


FIG. 3

the solution *S* is lowered, its resistance is greater and the balance of resistances of the bridge is destroyed. This causes some current to pass through the galvanometer *G*. The usual automatic conductivity apparatus contains a self-balancing system which automatically adjusts resistance R_2 by sliding the contact, *C*, to the right or left increasing or decreasing the resistance as may be necessary to balance any changes in the concentration of *S* as reflected by the galvanometer. This sliding contact connects an independent circuit, *FXD*, with an electrically operated valve at *X* which adds a concentrated solution to *S* as needed and thereby maintains a constant concentration as *S*.

Temperature variations can be allowed for by having R_3 a system of electrodes in a solution of the same material as *S* and approximately the same concentration and the whole immersed in a sealed container in the solution, *S*, to be measured. By this means, changes in conductivity due to temperature changes at *E* are balanced by similar changes on the other side of the bridge R_3, which is now a solution kept at the same temperature as the one to be measured.

Such instruments, practically perfect, are available for purchase, and problems that require conductivity control need offer no difficulties of installation.

Conductivity controls are most applicable to dilute solutions of acids and alkalis that are relatively free from other materials. Substances that do not ionize may be present in considerable quantities without interference and salts that do ionize may be present in small quantities without serious interference in the case of acid or alkali control. The conductivities of the hydrogen and hydroxyl ions are so much greater than that of any other ions that the presence of other ions has a relatively small effect on the total conductivity of the solution.

For solutions of materials that ionize only to a small degree, conductivity controls cannot be applied. For solutions which are combinations of materials and not essentially acid or alkali solutions, conductivity measurements are equally inapplicable and other physical measurements must be utilized in order to control them.

(This discussion will be followed in an early issue by an article describing controls based on electric potentiometric measurements.—The Editors.)

Murchison is Cheerful for Textiles in 1938

A NOTE of sound optimism and cheer prevails in the message sent at Christmas to members of The Cotton-Textile Institute, Inc., by Claudius T. Murchison, its president. His keen and clear analysis of prevailing conditions, and his cheerful prediction for the new year, constitute an encouraging picture. So much he said is applicable to all phases of industry that we are reproducing his statement in full below. He said:

"It is not necessary to draw upon sentiment to find elements of cheer for the Christmas stocking of the industry. The fears and actual grief which we have recently known and which still persist in some degree are rapidly being dispelled.

"The threat of wage and hour legislation has been at least temporarily lifted. The danger of drastic and arbitrary control by a central Federal agency has apparently been permanently removed. In the matter of maintaining our voluntary standards of wages and hours we are more and more thrown upon our own resources. The industry has had occasion many times during the year to bring its standards into the public gaze. They constitute an irrevocable moral commitment which will not be broken in the year that lies ahead if at this time there is a reaffirmation of faith and purpose.

"The threat of the processing tax has likewise been lifted and the undistributed surplus levy will be modified to the end of permitting a resumption of sound financial policy.

"Despite the unprecedented world supply of cotton, which but recently threatened an indefinite demoralization of prices, the character of the impending acreage control legislation, together with the loan policy of the government, now seems to assure market stability with the odds in favor of increasing price firmness. The nationwide supplies of finished textile goods have moved from a condition of excess to one of comparative scarcity, thus laying the foundation for greater consumer buying.

"The unbridled, reckless extravagances of the communistic elements in the ranks of labor have been curbed by the force of public opinion and are being replaced by counsels of sanity and intelligence.

"The legislative division of our government is once more asserting its faith in the principles and traditions of the American system and will, with increasing aggressiveness, seek the procedures which are constructive and in the interest of the entire public.

"Given these things, with the maintenance of world peace, the year 1938 will be one of returning prosperity tempered by rationalism and individual management and a stronger adherence to those policies which are motivated by the welfare of industry as a whole."

Instructor Owen Shaw explaining the new features in the head of the 1937 model Saco-Lowell spinning frames at Porterdale. Some of these men have received diplomas and are continuing their studies.

Bibb Employees at Porterdale Enjoy Two-Way

Program of Vocational Education

By J. R. Wommack

Coordinator of Vocational Training, Covington, Ga.

INTELLIGENT appreciation and study of the local need, and the application of practical methods to fill it, will usually solve a problem. Faced with the demand for better-trained and better-educated employees, the Porterdale division of Bibb Manufacturing Company devised a two-way program of vocational education that is producing results. Adult employees round out their education and knowledge of their jobs; selected high school boys receive practical instruction on mill subjects along with their academic training . . . . . .

SOME YEARS AGO, a young Georgia Tech graduate, Walter K. Defore, who was then working in the Bibb plant at Porterdale, Ga., recognized the need of the mill employees for better training to improve their abilities and get ahead in their line of work. Heartily encouraged by the management, young Defore started a class. From this small start, with the co-operation of mill and public school officials, the project grew steadily in numbers of employees served, in effectiveness of organization of instruction, in results and in popularity.

As the mills continued to modernize equipment, as for example, by the conversion of the picking equipment to single process, it became increasingly apparent that the training offered in the vocational classes was necessary to the employee for his successful operation of these newer types of machinery and his continuity in employment. To meet this new condition, the classes were enlarged by taking in those men who realized they were behind the times and who were determined to make of themselves better frame tenders, card grinders, frame fixers, section men, and, hence, better citizens. The courses now offered by the classes at Porterdale include: Cotton Mill Mathematics; Calculations on Carding, Spinning, Weaving and Cloth; Designing; Practical Fixing on Carding, Spinning, Winding, Brownell Twisters, and Looms.

The classes in mathematics, calculations and designing are held in the regular school rooms in the Porterdale High School building. The courses of study followed are the Standard Cotton Textile Evening Courses of Study, and credit cards and diplomas are issued by the State Board for Vocational Education following the completion of the required work.

The fixing classes are held in the mill on Saturday morning while the machinery is not in operation. In these classes, special emphasis is placed upon the newer types of machinery, and all other special attachments or improvements on different machines now in operation in the plant.

The outline for the fixing work has been reorganized just this year and covers all phases of repairing, replacing, adjusting, setting, cleaning and lubricating incident to a thorough job of fixing. Students are assigned, individually or in groups, to a specific job, and after a study of references and a class discussion covering the reasons for doing the job and the methods to be used, each student makes the necessary drawings and a manipulative sheet outlining the steps to take in doing the job. After this work has been approved by the instructor, the students

then proceed to do the actual job on the machines under the supervision of an experienced instructor. By following this procedure each pupil develops, not only the ability to perform the actual operation of fixing, but also a knowledge of why the work is done and the results to be obtained by doing a thorough job.

Each student keeps a note-book of his fixing work and frequently the agent, superintendent and overseers look these over and credit is given where credit is due. The State Board for Vocational Education awards credit cards and diplomas for completion of the work outlined in the Standard Cotton Textile Evening Courses of Study.

The instructors are selected from the foremen, well qualified fixers, and others technically and practically trained and experienced. In some instances they themselves are graduates of the vocational school.

The texts and other references used include "Cotton Mill Machinery Mathematics", by Quigley and Smith; "Practical Loom Fixing", by Thomas Nelson; special booklets on machinery, bulletins issued by the machine builders, various magazine articles and mill reports.

Many mill and office promotions have been filled with men from these classes, and, relatively speaking, some of them have had the benefit of little education other than that received in these classes. These men include overseers, shift foremen, fixers, oilers, office workers, etc. Every department of the organization considers the vocational classes as the source of supplying the needs of individuals seeking promotion and to better their conditions by becoming more efficient on their present jobs.

Frequently "pep" meetings, apart from the class periods, are held and the entire local management is present. In these meetings, talks are made by different executives and class members. Various problems are discussed. Here each student is made to feel that he is a vital part of the organization and that his opinion is worth just as much as the other fellow's. Visits are made frequently to the classes by the overseers, and sometimes prizes are offered for the best solution to a mill problem. As an example, it may be the best solution to a complaint about bad work and the donor of the prize offered for the best solution presents the award to the winner in the presence of the entire class. The solution is read and discussed by the particular group immediately concerned. All solutions are judged on thoroughness of subject matter and neatness.

It would be difficult to place a definite measure on the value of these vocational classes; they have become an almost indispensable part of the life of our people. Men with any idea of advancement and any desire for additional knowledge are always found in these places, either to give or to secure more information about their jobs and other things essential for making or developing leaders in their respective fields.

The classes for men in Porterdale are an important part of the program but they are not all by any means. A little more than a year ago, school officials of Covington, Porterdale and Newton County, and officials of The Bibb, found that many more of the Porterdale boys would continue their senior high school training in Covington particularly if the Covington High School could offer to them a vocational training that would enable them upon graduation to advantageously enter the textile industry.

Vocational Training in High School

The set-up or arrangement of this program is unique and has proven to be unusually effective and valuable from the standpoint of the boys. The plan is to offer a part-time textile course to high school boys of exceptional scholastic ability, standing and physique, who have reached their 16th birthday. And of course, a boy must be really interested in entering the textile field upon leaving school. After he is enrolled, he must keep up his high scholarship standard or he must return to the regular academic course.

These students spend four hours per day in the textile class and take two regular high school Eng-

Doyle Bailey, the instructor, is shown demonstrating the mechanism of a cassimere head on a double-width loom . . . .

This is the textile high school class composed of boys from Covington and Porterdale high schools. J. R. Wommack, at left, is giving individual instruction to the students, the subject matter depending on the department in which the students work . . . . . .

lish, social science, natural science or other subjects, which the boy elects, in addition. In the textile class the pupil spends three hours per day in the mill, which the company expressly loans to the Covington High School as a training laboratory. The high school textile teacher is in charge of the pupils in this laboratory. The pupil works directly with the operatives, fixers, supervisors and instructors. He learns the how and why of each job, and after he has learned this, he is placed on another job. Each student spends the entire year in a department. Three years are thus required to complete the course. During the year the boy learns the fundamentals of the operation of every machine and process in the department. In learning to grind cards, for example, a student studies all available books and pamphlets on the subject. He learns why cards are ground, how the wire looks under the magnifying glass when dull or sharp, new or old.

As can readily be seen the boy, to a greater or less extent, depending on the boy and the operation or process he is studying, does interfere with production and therefore could be regarded by the operative, fixer, second hand or overseer who is assisting in teaching him at the time as a distinct nuisance. To the credit, however, of the operatives and operating executives, be it said, every adult seems to love an earnest boy and to feel that he is having a part in helping that boy to success.

This textile laboratory training is conducted in the Osprey mill, which contains one of the greatest varieties of modern textile machinery to be found in any mill in this section.

The student goes to the class room for one hour per day and here he studies the related technology underlying each job and process. This includes textile mathematics, textile drawing, textile terminology, lubrication, safety, industrial hygiene, dealing with people, and similar necessary branches.

The results of these classes are many. Space allows mention of only a few of them. They have stimulated interest in school work among the boys in general. Many students otherwise would have dropped out of school had it not been for this particular type of training. Boys who have formerly been doing very poor work in school are now coming to the front in scholarship and school conduct to be considered eligible for the textile course. There are instances where boys dropped out of school two years ago, re-enrolling this year just for this work. They now realize that they will be prepared for work when they finish high school and can go to work for a much better salary than they could on the old basis.

The parents have become more interested in the welfare of their sons because in some instances the son learns the job along with one of his parents, and the parents know exactly what the son is doing in school.

The mill help in general is more interested in the school. It is a frequent occurrence for a supervisor to ask for the privilege of helping to train a certain boy, with the remark, "I would like to help train him for my assistant and later for this job."

At the end of the course, each student is qualified to enter upon several jobs. He is capable of making different reports and understands the fundamentals of operation and maintenance of the different machines. With the background of his practical school training he is in a better position to acquire the experience and to develop the ability necessary for a supervisor and leader.

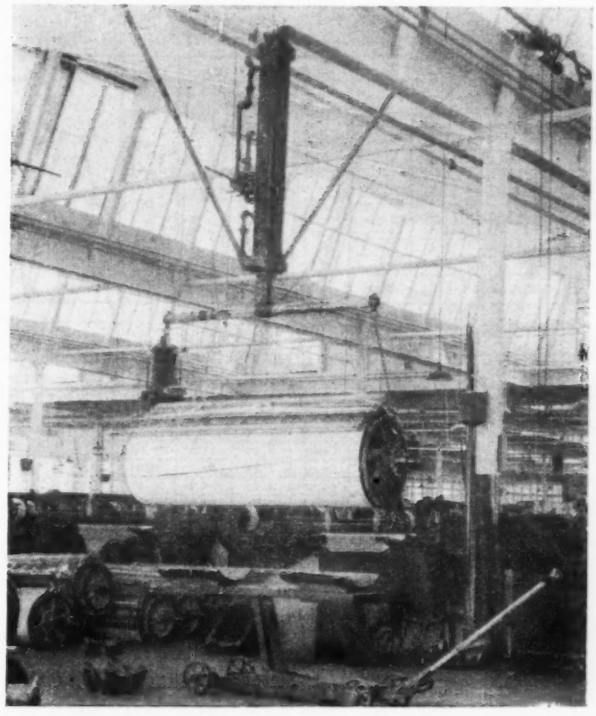
Much of the credit for the success of these schools is due to E. L. Ficquett, county superintendent of schools, E. C. Hawkins, superintendent of schools in Covington, Miss Maude King, principal of the Porterdale schools, the late W. D. Anderson, Jr., president of The Bibb, H. W. Pittman, personnel director, Agent J. O. Porter, Superintendents J. T. Cook and J. S. Turner, and Overseers Eugene Sprayberry, Pressley Boyd, J. V. Daniel, Holland Sears, W. C. Lane, J. L. Rye, J. R. Jolly, R. J. Cason, Elbert Pride, Andrew Burch, and to every fixer and operative with whom the men and boys have had occasion to work.

A two-part article, describing the classes for training loom fixers at the Columbus (Ga.) plant of the Bibb Manufacturing Co., appeared on page 58, November, 1936, and page 62, December, 1936, COTTON. Another article, "Teaching Textiles in High School," page 58, August, 1937, issue, described in part the vocational activities of the mills of the West Point Mfg. Company. Copies of these articles are available upon request.

Handling Large Loom Beams

By R. A. Butler
Engineering Department, Manufacturing Division,
Marshall Field & Co., Spray, N. C.

Following the trend toward larger packages throughout the mill, we have changed the loom beam heads in one of our plants from the 18-inch diameter to those of 23-inch diameter. We planned to do this without having to move any of our looms, thus narrowing the width of the warp alleys in our case to only 17 inches between beam heads. Our problem then rested upon the solution of transporting 23-inch beams through a 17-inch alley. But first let us look at the reason for changing at all, and then let us consider the method of meeting the problems.



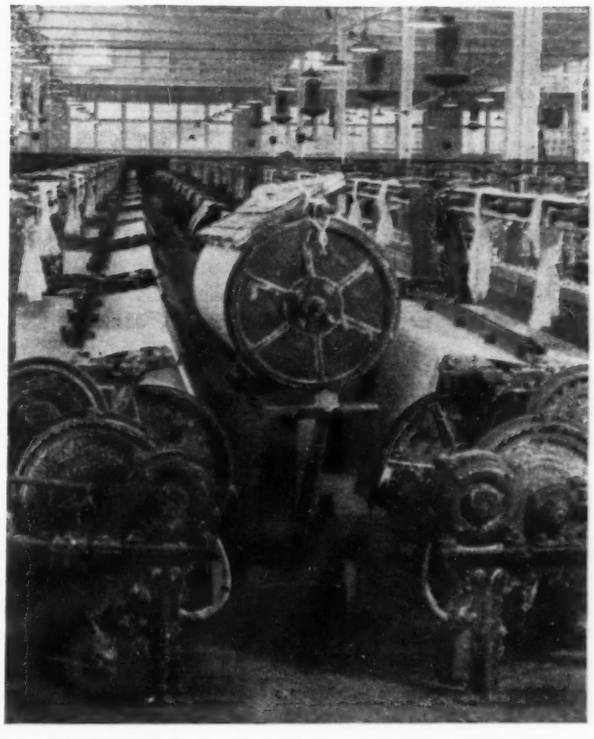
Above: Large beam raised by air hoist being lowered into cradle of hydraulic truck. Right: large beam passes through warp alley . . . . . .

One method of attaining greater production in the weave room is to increase the efficiency of warping. That is, if we have to tie-in only one warp where formerly we tied-in two, we have increased our efficiency considerably—or by exactly the length of time for tying-in the warp, cleaning the loom, and starting it up. And if we only have to tie-in half as many warps on the loom, we do not need as many warp men, smash hands, and loom cleaners to work when the warp runs out. By the same token we do not doff as much in the slasher room so we increase our efficiency there. But one of the greatest advantages of the larger loom beam is that the tying-in room expense is cut; there are not as many warps to tie.

Since changing over to the 23-inch diameter beam heads, we have found that we are able to put 60 per cent more yarn on the beams, which so reduces the original cost that we have made 125 per cent on the investment. The cost of the new heads and minor changes to looms was less than $13.00 per loom.

As indicated, we were faced with the problem of carrying a 23-inch beam through an alley only 17 inches wide. G. C. Truslow, superintendent of the Marshall Field & Company's plants in Draper, N. C., designed a hoist consisting of an ordinary air cylinder, manufactured in the company's machine shop, with a two-way valve for admitting the air for raising the beam and for gradually lowering it. He then designed a hydraulic truck, which is elevated without the load very quickly, and the beam is lowered into the cradle or platform of the hydraulic truck, by the air hoist in the tying-in room.

The secret of the whole process is that when the hydraulic truck is raised, it passes above the narrowest point in the 17-inch alley and the center of the beam is approximately level with the whip rolls on the looms. There is plenty of room for the beam to pass down the warp alleys.



The lowering of the full warp beam into the loom is a simple detail.

It might be noted that the air hoist for raising and lowering the full warp beam into the hydraulic truck only costs approximately $35.00 when made in our machine shop. The hydraulic truck is an adaptation of a standard automobile hydraulic lift with a specially designed cradle for the beams.

A discussion of the trend toward larger beams, with reasons and results, appeared on page 108 of the February 1937 issue of Cotton.—The Editors.

The Story of Uneven Yarn (No Fable)

By Fay H. Martin

ALL NATURE is a matter of averages—so it is with a cotton mill. The law of averages applies to all of the work in a plant but the problem is to keep it as near to a standard as possible. A mill man never can tell what tomorrow will bring forth; if the yarn is on or above the standard he smiles but if it is below the standard he waits a day in hopes that tomorrow it will be better—but if not he begins to hunt and worry.

Making the Test

The cotton yarn tests shown in this article were made in a large, well organized and efficient New England cotton mill. The machinery is about 20 years old and in good repair. The organization of the machinery with drafts, twists and doublings from the bale to the spinning frames inclusive were as follows:

Staple of cotton 1 1/32-inch.
Two-process picking.
12-ounce finisher lap.
Single carded with 100 draft.
50-grain card sliver.
Double 8 on breaker drawing.
Double 6 on finisher drawing.
65-grain sliver from finisher drawing.
.50-hank slubber roving (12 x 6).
3.90 draft. 1.10 twist multiplier.
1.00-hank intermediate roving (10 x 5).
4.00-draft. 1.20 twist multiplier.
3.00-hank fly frame roving (7 x 3½).
6.00 draft. 1.30 twist multiplier.
20s warp yarn. Double roving.
13.33 draft. 4.75 twist multiplier.
1,536 total doublings.

The factor of yarn is the yarn number multiplied by the skein break. Example: 19.92 × 111.3 = 2,217 (Fig. 1). Pounds per grain break is the skein break divided by the weight of the skein in grains. Example: 111.3 pounds break ÷ 50.2 grains = 2.217 pounds per grain. Or the factor may be used and pointed off 3 figures = 2.217.

The standard practice of this mill in testing its yarns was to make 40 consecutive tests, one test for each day of operation and then take the average for the 40 days as the standard of quality and record.

The procedure on all tests was to take 7 bobbins of yarn from the spinning frame, properly marked, and send them to the laboratory before noon each day. 120-yard skeins were reeled from these bobbins and hung on sticks in the open room to condition overnight in the properly humidified laboratory. The skeins were broken and weighed during the next forenoon and the results entered upon the report blank; thus it took about 24 hours to complete a test in the laboratory.

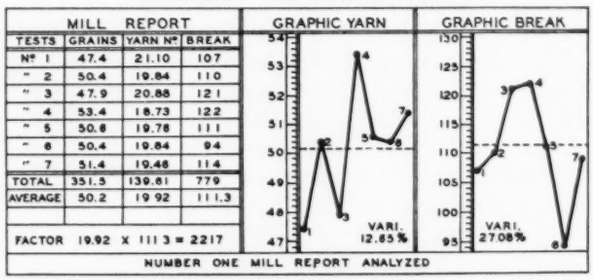
Fig. 1 shows a mill report in detail, both in figures and graphically. The mill superintendent looks at it and smiles because the average size is 50.2 grains, the yarn number is 19.92s with an average break of 111.3 pounds. The factor is 2,217. This is mighty good for 20s yarn and he pats himself on the back and says, "That is fine". But let us analyze this report and see what we find.

Bobbin	Weight in grains	Break of skein
No. 1	47.4	107
No. 2	50.4	110
No. 3	47.9	121
No. 4	53.4	122
No. 5	50.6	111
No. 6	50.4	94
No. 7	51.4	114

Average for the 7 bobbins was 50.2 grains of 19.92s yarn with a break of 111.3 pounds. While the average was close to the required number the unevenness was out of reason. Take No. 2 and No. 6 bobbins; both were sized at 50.4 grains but No. 2 broke at 110

YARN SIZE AND BREAK REPORT

MILL REPORT			
TESTS	GRAINS	YARN Nº	BREAK
Nº 1	47.4	21.10	107
" 2	50.4	19.84	110
" 3	47.9	20.88	121
" 4	53.4	18.73	122
" 5	50.6	19.78	111
" 6	50.4	19.84	94
" 7	51.4	19.46	114
TOTAL	351.5	139.61	779
AVERAGE	50.2	19.92	111.3
FACTOR	19.92 X 111.3 = 2217		



NUMBER ONE MILL REPORT ANALYZED

AVERAGE SIZE AND BREAK WITH VARIATIONS FROM 40 CONSECUTIVE REPORTS

NUMBER OF REPORT	DATE 1935	WEIGHT IN GRAINS	NUMBER OF YARN	PER CENT OF VARIATION	BREAK IN POUNDS	PER CENT OF VARIATION	FACTOR
1	JAN. 2	50.2	19.92	12.65	111.3	27.08	2217
2	" 3	50.3	19.88	3.25	104.7	8.91	2081
3	" 4	51.1	19.57	8.75	109.3	31.91	2139
4	" 7	50.0	20.00	7.85	101.9	23.65	2038
5	" 8	50.0	20.00	7.85	106.8	11.88	2132
6	" 9	49.9	20.04	8.15	106.9	11.88	2142
7	" 10	49.9	20.04	9.18	109.1	24.48	2188
8	" 14	49.2	20.33	7.95	102.1	17.00	2078
9	" 15	50.8	19.69	9.18	106.4	9.90	2095
10	" 16	48.3	20.70	6.12	98.1	12.22	2031
11	" 18	48.8	20.49	2.70	101.0	16.84	2069
12	" 21	49.7	20.12	9.05	101.0	17.90	2032
13	" 22	49.4	20.24	12.50	100.9	13.97	2042
14	" 23	49.7	20.12	6.90	100.6	7.29	2024
15	" 24	49.5	20.20	9.97	103.7	14.43	2095
16	" 28	49.4	20.24	2.90	104.1	12.12	2107
17	" 29	49.1	20.37	5.91	100.4	11.70	2045
18	" 30	49.5	20.20	6.45	102.3	20.88	2066
19	" 31	49.8	20.08	3.25	107.6	10.57	2161
20	FEB. 4	49.9	20.04	7.38	108.8	12.50	2181
21	" 5	50.2	19.92	9.28	108.3	27.08	2158
22	" 6	49.7	20.12	3.28	107.6	12.74	2165
23	" 7	49.3	20.28	10.72	98.9	17.38	2006
24	" 11	50.4	19.84	7.12	104.3	10.00	2069
25	" 12	49.1	20.37	4.98	102.9	16.49	2097
26	" 13	51.2	19.53	4.43	109.3	18.18	2137
27	" 14	50.8	19.76	7.75	109.0	9.52	2154
28	" 18	51.3	19.49	7.02	111.4	13.20	2171
29	" 19	49.8	20.08	8.99	106.4	11.76	2137
30	" 20	50.3	19.88	11.71	106.4	14.00	2115
31	" 21	50.7	19.72	5.47	110.1	18.00	2171
32	" 25	51.2	19.53	8.02	105.0	15.48	2051
33	" 26	50.4	19.84	14.10	104.6	11.11	2075
34	" 27	50.1	19.96	8.84	104.1	14.43	2078
35	" 28	50.8	19.69	8.11	109.9	17.17	2164
36	MAR 4	49.3	20.28	5.85	98.4	18.12	1998
37	" 5	49.6	20.16	10.46	102.0	13.82	2056
38	" 6	50.1	19.96	5.30	102.1	5.05	2038
39	" 7	50.2	19.92	8.79	102.4	13.32	2040
40	" 11	50.4	19.84	7.53	100.0	24.44	1984
TOTALS		1999.2	800.48	299.83	4189.8	616.38	83821
AVERAGE		49.9	20.04	7.49	104.7	15.40	2095

Fig. 1. Average result of 40 tests

pounds and No. 6 at 94 pounds. This is a difference of 16 pounds.

Again, No. 3 bobbin and No. 4 bobbin had weights of 47.9 grains and 53.4 grains with breaks of 121 pounds and 122 pounds respectively. This is only a one pound difference in break but is 5.5 grains difference in number, or 20.88s against 18.73s—2.15 numbers apart.

High Breaks in the Report

The high grains in this report are 53.4 and the low grains are 47.4, a variation of 12.65 per cent.

The high break was 122 pounds and the low break was 94 pounds, a variation of 27.08 per cent. However, these variations are all averaged together and make *even* and *strong* yarn on the reports.

The *unevenness* in the yarn is there just the same but it is concealed by adding the grains together and dividing the sum by 7, thus we get 50.2 grains or 19.92s yarn. The average break is 111.3 pounds and this multiplied by 19.92 gives 2,217 for a factor.

This is close to 50.0 grains or 20s yarn with a high break. No wonder the superintendent smiled.

In looking over the average results of the 40 tests (Fig. 1) we find that the greatest variation in the yarn number was on report No. 33 of 14.10 per cent and the least variation was on report No. 11 of 2.70 per cent and the average variation for the 40 tests was 7.49 per cent.

Studying the averages for the 40 reports we find:

Average grains	49.9
Average yarn	20.04
Average variation	7.49 per cent
Average break	104.7 pounds
Average variation	15.4 per cent
Average factor	2,095

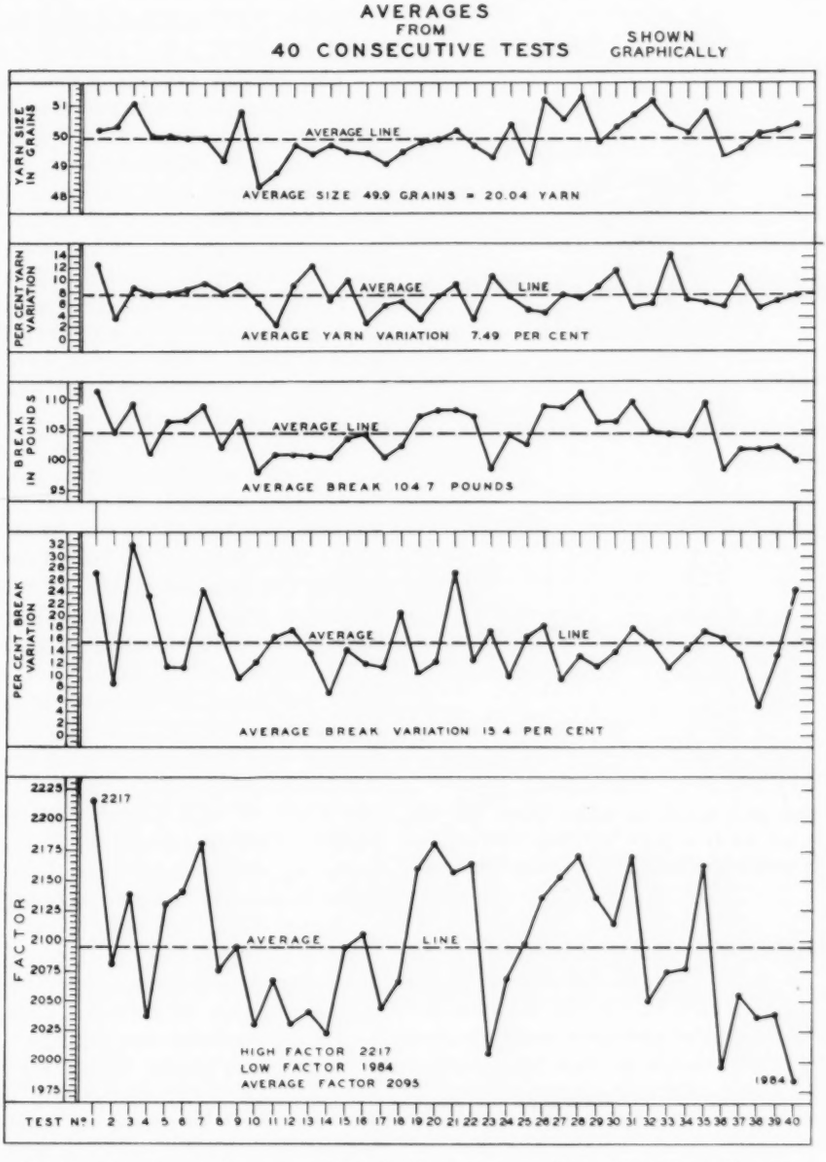

AVERAGES
FROM
40 CONSECUTIVE TESTS
SHOWN
GRAPHICALLY
YARN SIZE IN GRAINS
AVERAGE LINE
AVERAGE SIZE 49.9 GRAINS = 20.04 YARN
PER CENT YARN VARIATION
AVERAGE LINE
AVERAGE YARN VARIATION 7.49 PER CENT
BREAK IN POUNDS
AVERAGE LINE
AVERAGE BREAK 104.7 POUNDS
PER CENT BREAK VARIATION
AVERAGE LINE
AVERAGE BREAK VARIATION 15.4 PER CENT
FACTOR
2217
AVERAGE LINE
HIGH FACTOR 2217
LOW FACTOR 1984
AVERAGE FACTOR 2095
1984
TEST Nº 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

Fig. 2. Here are shown graphically the averages from 40 consecutive reports, compiled from the average size and break with variations as shown in the *figures* at Fig. 1.

By the time this group of 40 tests are averaged again, say 4 or 5 groups averaged together, the result would be almost perfect yarn. Hence we get even and strong yarn on paper, but a chain is no stronger than its weakest link and yarn in practice is no stronger than the lowest component of the average. It is the light and weak yarns, those below the average, that cause trouble in subsequent operations.

Fig. 2 shows graphically the averages from 40 consecutive reports. This was compiled from the

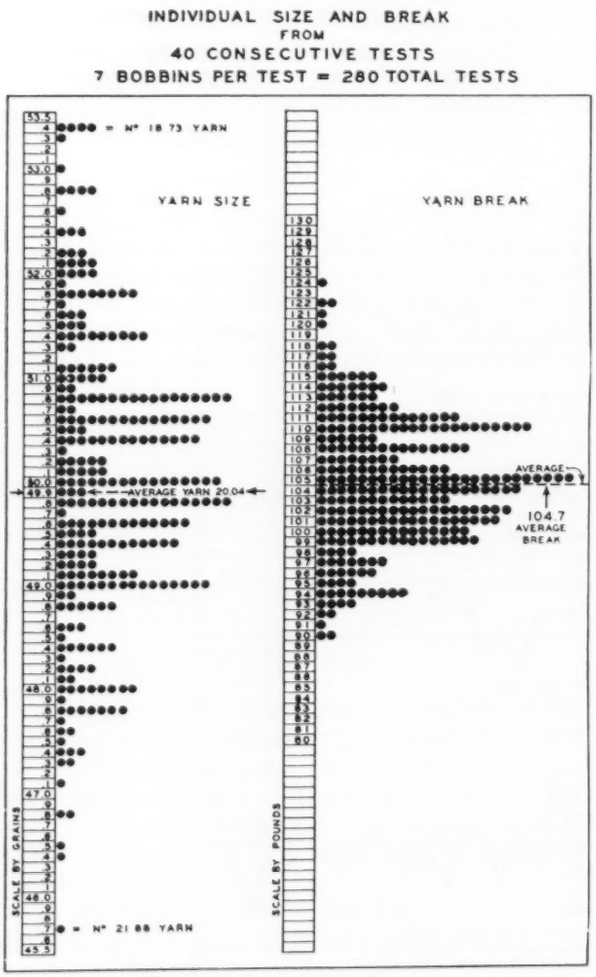


Fig. 3. Individual size and break as taken from the 40 reports, 7 bobbins on each report totaling 280 tests. Only 3 were found weighing 49.9, the average number.

average size and break with variations as shown in *figures* in Fig. 1. A graph is much more comprehensible than to follow a column of figures because we can see at a glance how the averages vary up and down from a given line, which in this case is the average line for 40 tests. An explanation of Fig. 2 is not necessary because it shows, after a little study, how uneven even yarn is—even when the uneven yarn is *averaged*. However, we will call the reader's attention to one point. The factor on No. 1 report is 2,217 and the factor on No. 40 report is 1,984. No. 1 is the best and No. 40 is the poorest. Thus again we note how uneven even yarn is.

Fig. 3 shows the individual size and break as taken from the 40 reports, 7 bobbins on each report, $7 \times 40 = 280$ individual tests. A scale in grains and tenths is used. By going over the 40 reports, all skeins of the same number of grains were plotted against the scale. Thus only 3 were found that weighed at the average number, 49.9 grains, while 17 were found that weighed 50.8 and 17 were found that weighed 49.8. There were 134 below the average and 143 above the average.

The variation was from 45.7 grains, 21.88s yarn to 53.4 grains, 18.73s yarn. This is a variation of 16.84 per cent but the average variation for 40 tests was only 7.49 per cent. Thus we can see what adding and averaging does to make even yarn on paper. The breaks were plotted in the same manner against a scale in pounds.

Individual Skein Breaks

The 280 individual breaks showed a variation from 90 pounds to 124 pounds inclusive, or 37.77 per cent, while the average variation on data given in Fig. 1 was only 15.40 per cent. It will be noted, however, that there were 25 breaks at 105 pounds, just above the average, and 20 breaks at 104 pounds, just below the average. There were 140 breaks above and 140 below the average. The breaks bunched together in a better manner than the yarn sizes were.

Fig. 4 shows the yarn break distribution. There were a total of 280 breaks and these were plotted against the grain and yarn scale on the left; the pound scale is shown at the top.

It is an interesting study to see how the breaks vary at each number of yarn. Take the breaks against 50.0 grains which is 20s yarn: one skein broke at 94 pounds, another at 96, two at 99, one at 100, two at 101, one at 102, one at 104, three at 106, one at 107, two at 110 and one at 116. The average of these 16 breaks is 103.5 pounds and the variation is 23.40 per cent, all from one number of yarn.

It is impossible to foretell with exactness just what the breaking strength of a skein of yarn will be. In the breaks just given they range from 94 pounds to 114 pounds inclusive—all from the same number of yarn. Also, in Fig. 4 it may be noted that one skein of 46.9 grains, 21.32s yarn, broke at 121 pounds, and one skein of 53.4 grains, 18.73s yarn, broke at 124 pounds. The lighter number of yarn broke within 3 pounds of a heavier number.

Again Fig. 4 shows the yarn curve to be nearly a straight line while the curve of the average breaks or rather the line that connects the average breaks of each number of yarn is a puzzle to follow without a pencil or pointer for a guide.

This chart shows that there is no exact relation between the yarn number and the break. Thus we are right back to where we started: "All nature is a matter of averages—so it is with a cotton mill".

Elimination of the variations in the yarn is the big study of the day both by the cotton mill men and the machinery builders.

YARN BREAK DISTRIBUTION
40 CONSECUTIVE TESTS
7 BOBBINS PER TEST = 280 TOTAL TESTS

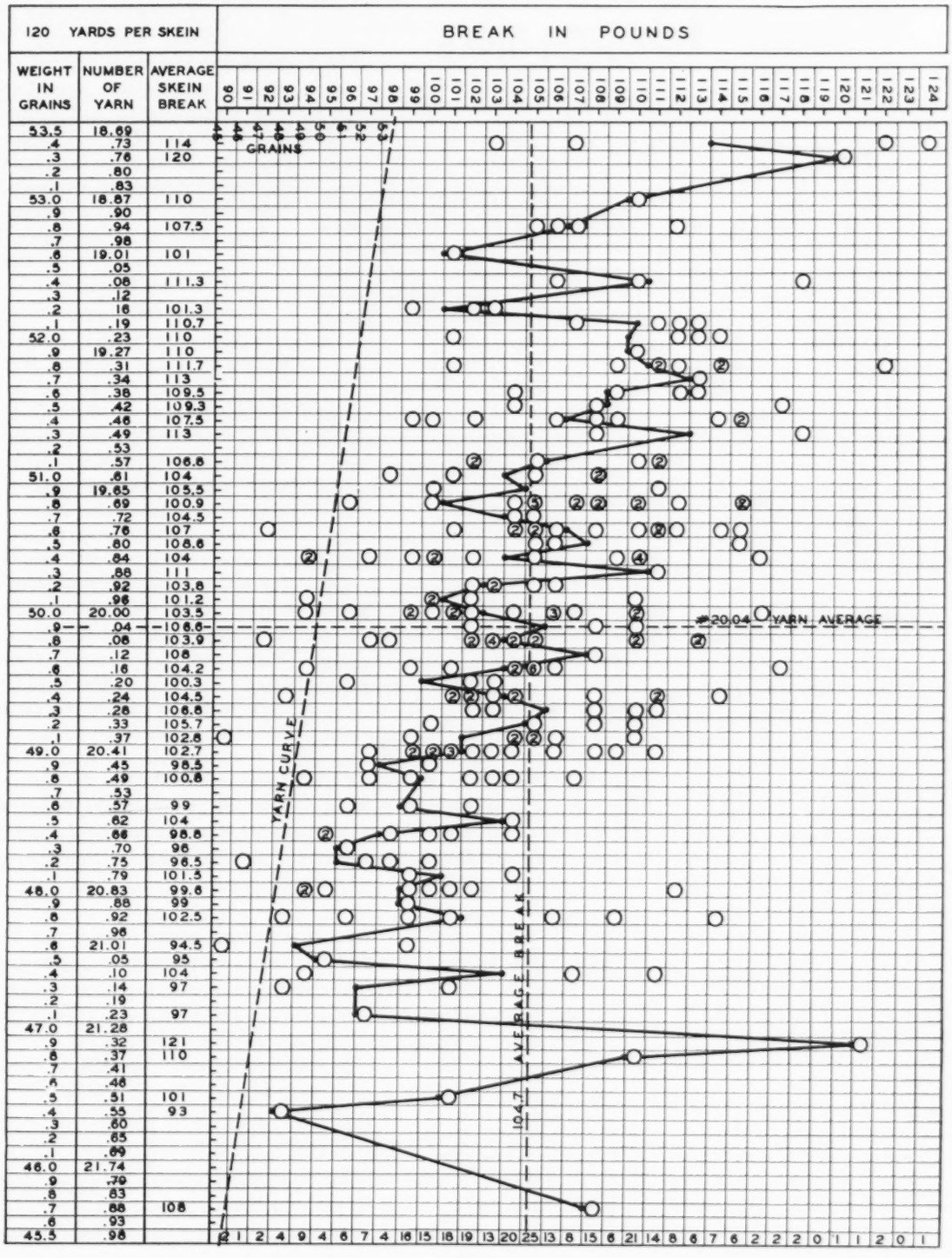


Fig. 4. This shows the yarn break distribution. There were a total of 280 breaks and these were plotted against the grain and yarn scale on the left; the pound scale is shown at the top. It is impossible to foretell with exactness just what the breaking strength of a skein of yarn will be. In the breaks given above, they range from 94 pounds to 114 pounds inclusive—all from the same number of yarn. It is interesting to note that the lighter number of yarn broke within 3 pounds of a heavier number. Also note that the yarn curve is nearly a straight line while the curve of the average breaks varies widely. From this it may be seen that there is no exact relation between the yarn number and the break.

The Why and Wherefore of Fabric Designing

By T. O. Ott, Jr.

(Article 1)

IT IS routine work to use a book of standard designs in the manufacture of standard fabrics. In specialty goods this practice is outlawed. The designer must produce novelty goods that will appeal to an ever-changing consumer. It is also quite simple to follow instructions from some former design specifications in repeating an order, but when some variation is to be made in the fabric, designing is not so elementary. It is not the purpose of this series, of which this article is the first, to select a novelty fabric and release it to the reader, giving the necessary specifications for its reproduction, but it is to outline the procedure followed in setting up new fabrics, or fabrics where there is some variation, giving the "why and wherefore" behind each move of the designer in making the finished fabric. When the series is finished, Mr. Ott will have covered every phase of the designer's work, including such important points as the construction of yarns, their analysis, etc. The author especially emphasizes the value of outside contact for designers, the exchange of ideas, visitation, etc.; and he truly says that novelty designing is not a production end of the mill business.—The Editors.

MILLS THAT RUN fancy fabrics are constantly preparing new ones to meet seasonal demands. These fabrics may only be a variation in color, or they may be fabrics of different constructions, or patterns; in some instances radical changes in all three are instigated. Sometimes even large scale changes in equipment are made.

To carry out the styling of new fabrics effectively, the designer in the mill is made the clearing house or focal point of all style information. Whatever data concerning a certain style to be run are furnished him at the beginning, but he must supplement this information with his own knowledge or experience, or know where to secure that information which he needs.

The major need of all designers is new ideas. This may take the form of new or novel treatments of yarns, different constructions, or fancy designs that will develop new sales appeal in the fabric. It may be that the introduction of a few picks of a new yarn in an old style will do the trick, or perhaps it may be that a new finish will revitalize a style. Examples of this are rayon and Lanital, both of which opened broader fields for development of fabrics.

The best source of information and the most beneficial to the designer and stylist is frequent trips to style shows. At these shows a complete inventory can be taken on what others are doing and on the trend of the times. Here the designer can talk with customers, other designers, and stylists, and receive that mental stimulation that is so helpful and that comes with the exchange of ideas. Perhaps best of all is the fresh viewpoint the designer receives by being away from the mill and its routine for a few days.

Other valuable sources of style information are requests from customers or salesmen, periodicals from the particular field in which the fabric is consumed, and the various textile periodicals.

The Sample in Process

Regardless of the sources of ideas, the designer must catalog his information or notes in some manner so that he may have access to them readily as he works on his technical problems. Usually there are so many irons in the fire at one time that some system of note taking or records is a distinct advantage. For several years I have used a form called "Sample in Process", see Fig. 1, that has plenty of space for notes, swatches, and record of the sample as it is given trial runs. This form gives the history of a sample as it is being developed. If there is an original sample it is attached to the sheet on the square left blank for it, but if there is no sample then a note is made of this in the blank square.

This form may be supplemented by other sheets containing special instructions, which may be attached to the sheet so that all data on the sample are kept together. The chain draft and drawing-in draft are also attached to the sheet to make the instructions complete. In our mill I keep a clipboard with these records at the chain building table; there it is available to all parties concerned with the processing of the fabric.

When information pertaining to a new development in style begins to accumulate, I attach it to the Sample in Process record or make notes of it on the Sample in Process sheet. This may happen to any number of new samples at the same time. Almost every day I glance over the notes I have made of various ideas and select those which have developed far enough for more detailed study. So many ideas, when viewed superficially, look good, but when the details have been developed they are found to be impractical—therefore many of these records may be laid aside before completion, but it is well to retain them in some available file for future reference; they may prevent the same mistake in the future.

Fabric ideas call for varying de-

SAMPLE IN PROCESS

SAMPLE Nº 1

DATE STARTED July 14, 1937 DATE COMPLETED Aug. 1, 1937

REQUESTED BY John Doe (Customer)

DESCRIPTION

Wanted a checkerboard pattern in a colored filling effect using 2 to 4 colors of filling and one color of warp for use as a 54 in upholstery. The filling yarns to be in a corkscrew yarn with at least two contrasting colors used, one color to each adjacent square.

ORIGINAL SAMPLE

No fabric sample available to go by

TO WEIGH 19¼ oz per linear yard WARP 18/2

TO COST Less than one dollar FILLING 3/1 + 12/1

PROGRESS RECORD

Pattern drawn as per design draft	7-15-37
Set up in C + K Cotton King 72" 4 by 1	7-16-37
Trial run with dobby chain #1 with stock fillings	7-17-37
Trial run with chain #2 (accepted)	7-20-37

Warp colors used	Filling colors used
Tan #4	3/1 + 12/1 Eggshell #1
	" Brown #14
	" Green #23
	" Rust #1
	" Blue #8
	" Gold #1

DATE CLOSED July 20, 1937

DESIGNER T. O. Ott, Jr.

FIG. 1

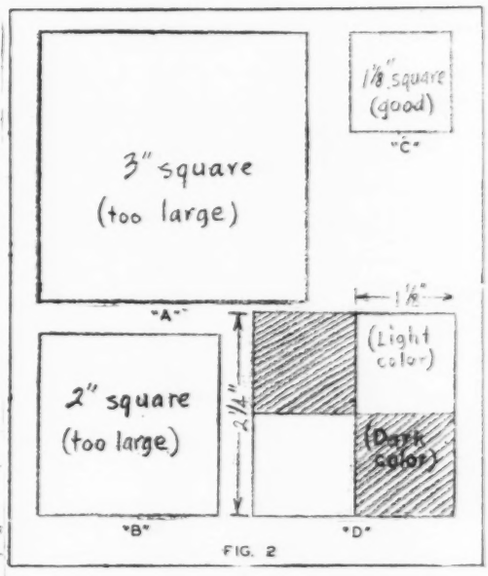


FIG. 2

grees of detail, from the change of a chain draft on a fabric already in production, to the complete design and lay-out for processing yarns and fabrics. As an example, we will say we are to create a checker-board pattern with a colored filling effect, using two to four colors of filling and one color of warp, for use as upholstery. The filling yarns are to be corkscrew yarns, with at least two contrasting colors used, one in each block or square. In this particular fabric, no similar fabric could be secured in the yarns or construction desired so we had to plan the fabric from the beginning.

So that we could better visualize the idea, a pencil sketch was made to secure the proportion of the figure desired. Then colors were indicated by cross-hatching the blocks. In determining the proportions to be used, we had to make several trials before we obtained the size block that was pleasing to the eye on furniture, and also that would repeat exactly in the width of the cloth, which had a standard of 54 inches. Fig. 2 depicts the efforts made in determining the size of the square. The 1⅛-inch square was selected, or *c* in Fig. 2, because it gave the most pleasing appearance and the best mechanical repetition.

The next move was to select a construction for the fabric, and the colors that had possibilities. For the construction we selected a standard warp or sley of 18s/2 with 58 ends per inch, and 25 picks per inch of 3s/1 and 12s/1 spiral. This figured to give a 19¼-ounce fabric on 54 inches, which came within the range of cost allowable. These yarns were selected for the trial because a hard twisted plied warp and a soft corkscrew filling allowed the warp to be almost hidden and gave the filling the appearance of sharp contrast. For the same reason the selection of colors, with the warp a neutral shade and the filling several colors, was made; the contrast between the warp and the filling subdued the warp where it was to show and accentuated the filling. The warp selected was tan, with two colors of corkscrew, one for each alternate block. The colors of filling were eggshell and brown, eggshell and green, and eggshell and rust, with possibly the addition of other combinations of eggshell and blue, and Chartreusse and brown. All numbers and colors of warp and filling were taken from stock yarns used in previous patterns.

With the foregoing information, the next step in making the sample was to select the point paper design with detail of weaves, drawing-in draft, and chain draft, a full repeat of the pattern.

As the construction was to be 58x25, then the point paper selected was, proportionately: 58:25 : : 16: P, or

$$P = \frac{25 \times 16}{58} = 6.9 \text{ or } 7.$$

Then 16x7 paper gave an exact representation of the figure, in correct proportion.

In completing the design on point paper, we decided to alternate two picks of one color with two picks of another. All alter-

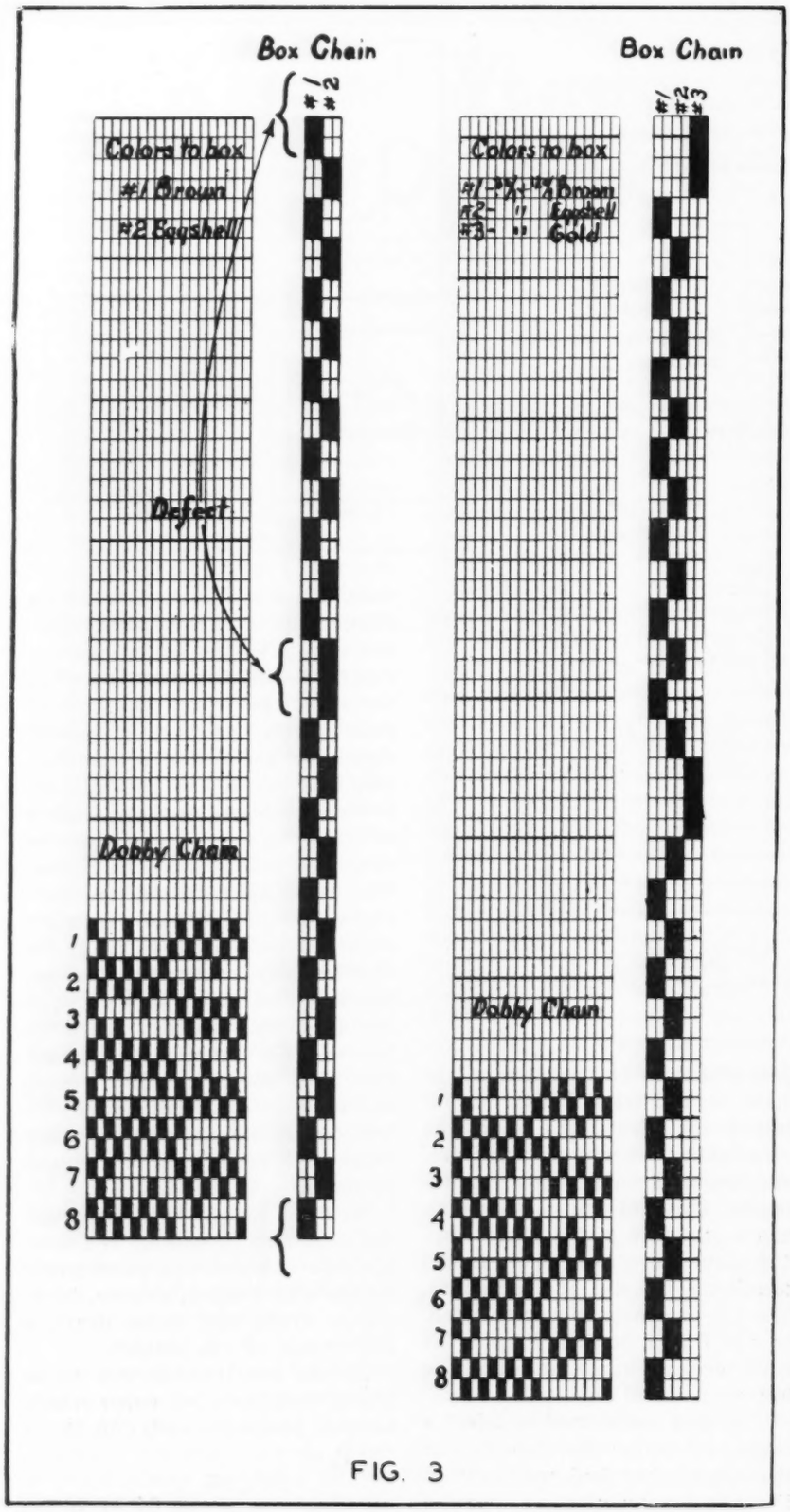


FIG. 3

In Fig. 3, trial No. 1 is shown at the left and trial No. 2 at the right. The fabric has 3200 warp ends and 24 selvage ends . . . . . .

nate pairs of picks were covered by the tan warp in one square, and then floated over all except a few binder ends in the other.

It was next necessary to calculate the number of ends to make a repeat of the pattern. Fig. 2, *d* gives the dimensions of the pattern. Each small square is 1⅛-inch and with two small squares to a repeat of the pattern both warp way and filling way, a full repeat of the pattern had a repeat of 2¼ inches each way. This meant that in the warp pattern there were to be 58 times 2¼ or 130 ends. Now, as each square in the warp repeat was to be interlaced differently, half the ends had to go on one group of harness and half on the other, or 65 ends per square.

A plain weave was selected for a cover weave and an 8-harness satin (with 2 as the counter) for a binder where the picks were to be floated. The binder weave was selected to weave up in a regular order on all ends to make the take-up equal. Both of these weaves were painted in at the left of the point paper design on 8 ends each to show that both could be made on 8 harness.

This 8-harness weave will not repeat evenly on 65 ends, as calculated, so to adjust for this we made the repeat for each square 64 ends so as to divide evenly by 8. As there were two squares or two separate groups of 64 ends each, one of which was to weave plain while the other wove satin, we had to put one group of 8 harness for 64 ends, or 8 times an 8-harness straight draw, and for the other group we repeated this with an 8-harness straight draw on 8 additional harness. The entire warp pattern had to be made on two groups of 8 harness, or 16 harness in all.

For the filling pattern there were two squares to the full repeat with each interlacing differently. The repeat from the sketch, Fig. 2 at *d*, showed 2¼ inches, therefore in calculating the picks to the filling pattern there were to be 25 times 2¼ or 56 picks in the repeated pattern. Then for each square there were 56 divided by 2 or 28 picks for each of the different squares. As the weave in each square was to cover 2 picks and float 2 picks of different colors alternately and to reverse the colors on adjacent squares, there were 7 bars of color showing and 7 covered in each square, or a total of 28 picks per square. (A bar is two picks of a color.)

In box chain, Trial No. 1, Fig. 3, the first 28 picks were inter-

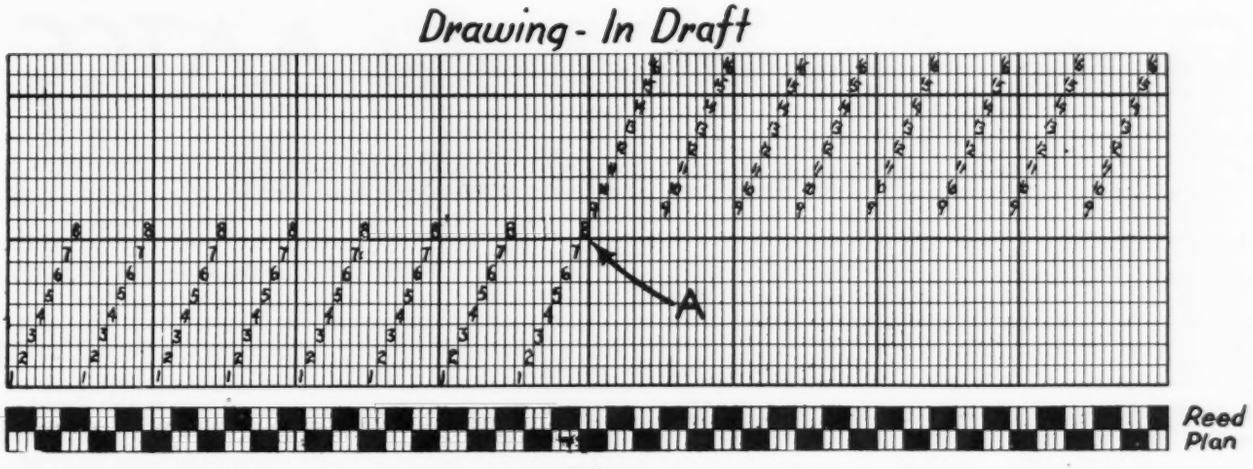


FIG. 4

There are 3200 ends in the warp, with 24 ends of selvage. This repeats 25 times. Reed is 18.5 dent.

laced as described, using two colors and the colors were reversed for the next 28 picks. This threw 4 picks of a color together at the change in color which caused the fabric to look defective. This was overcome and the fabric greatly improved as to appearance by the addition of 4 picks of gold at each change. See Trial No. 2, Fig. 3. There were two changes to a full repeat of the pattern, then a total of 8 picks was added.

The filling pattern repeated on 56 plus 8 or 64 picks, 32 dobby bars for a double index dobby. The addition is shown on the box chain, Trial No. 2, Fig. 3. The dobby chain and the box chain then repeated on 32 bars or 64 picks, into which 8 was an even divisor. As both the weaves were able to repeat evenly on 8 picks, the dobby chain only needed 8 bars or 16 picks. These bars are indicated on the chain draft by numbers, Fig. 3, and by the 2 selvage harness. The box chain could have been multiplied, but it was built as shown in Fig. 3, Trial No. 2, because it was a comparatively short chain.

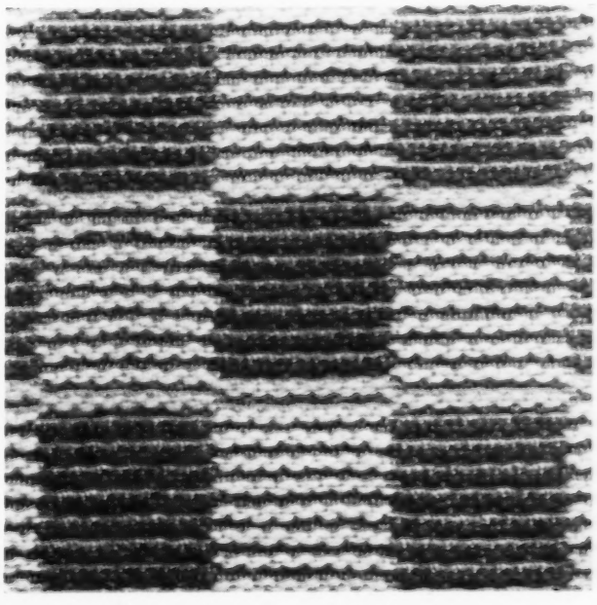
I found the design more workable by painting in the filling effects on a number of picks in each block. The divisional colors on the boxes were also painted in to show the change, and the box chain colors were indicated. On the balance of the design a pencil was used to fill in the weaves as it saved considerable time; also changes were easier to make by erasing the marks. (Editor's Note: These various colors are not reproduced in the box chain and dobby chain for technical reasons.)

Fig. 4 shows the drawing-in draft and the reed plan. The reader will note that at the point "A", Fig. 4, if this had been No. 1 harness instead of No. 8, the break would have been uneven and might have confused the drawing-in hand.

Fig. 5 shows the completed fabric, woven in rust and eggshell squares with a divisional color of gold. Other combinations were made by merely substituting another dark color such as green, brown, blue, or Burgundy, and keeping the eggshell and gold intact. When the gold was substituted, then the gold at the division was replaced by a blue to secure a contrast. All the pleasing combinations were run in sufficient amounts to be able to select the best combination. In this instance 6 or 7 combinations were sufficient.

Needless to say, we consumed considerable time in thinking and working out all of these steps that we have so casually written about in the foregoing paragraphs. The whole process was completed in about two weeks, with other work being done at the same time. It might easily have been much longer.

Here I must emphasize that designing cannot be put on a production basis. If a designer develops one or two outstanding patterns in a month, he is good.



Right, Fig. 5, showing the finished fabric. The squares actually are 1⅛-inch. Warp is 18s/2 with 58 ends per inch. Picks per inch are 25, of 3s/1 and 12s/1 spiral. 19¼-ounce, 54 inches wide . . . .

Quaker City Meeting of AATCC is Profitable and Enjoyable

On December 3 and 4 Philadelphia was host to the 17th annual convention of the American Association of Textile Chemists and Colorists. The meeting attracted nearly 1,000 textile chemists, dyers, salesmen and executives, who participated in a delightful entertainment program staged by the Philadelphia section of the association, which acted as hosts, and a thorough technical session which included authoritative discussions on a large number of timely subjects; much of which covered phases of the association's extensive research activities.

Alban Eavenson, of Eavenson & Levering, Camden, N. J., was elected as the new president of the organization. Duncan Ferguson, general manager of Sidney Blumenthal & Co., Shelton, Conn., was made first vice-president, and Arthur R. Thompson, Jr., of Ciba Co., Inc., Charlotte, N. C., is the new second vice-president. Harold C. Chapin, of Lowell Textile School, Lowell, Mass., and William M. Moorhouse, of National Aniline & Chemical Co., Boston, were re-elected as secretary and treasurer, respectively. The newly-elected councilors-at-large are: H. DeWitt Smith, of A. M. Tenney Associates, New York City, and Walter M. Scott, of Gustavus J. Esselin, Inc., Boston.

The Philadelphia convention was a complete success in every detail. The Philadelphia section, with Elmer C. Bertolet as general chairman of the convention committee, and Herbert S. Travis as chairman of the section, set a new standard of hospitality and entertainment. The technical program, arranged by Carl Z. Draves, chairman of the technical program committee, added much to the literature and information of the industry along pertinent and important lines.

The convention opened on Friday morning, with registration, followed by a luncheon for the national officers, meetings of the council and research committee. An interesting sightseeing trip to the Franklin Institute and Planetarium, conducted by the Philadelphia entertainment committee, was enjoyed by many of the visitors. Friday evening, following a platter supper in the ball-room of the Bellevue-Stratford Hotel, which was convention headquarters, the convention was officially opened by the president, William H. Cady, chief chemist of U. S. Finishing Company. The technical committee presented two features at the supper—a discussion of "Queer Forms of Light", by Henry E. Millson, of the Calco Chemical Company, who displayed the effects of fluorescent and phosphorescent light; and a colored motion picture, "Growing Crystals", shown through the courtesy of Lloyd A. Jones, of the Eastman Kodak Co.

The concluding feature was a stage show of exceptional merit and interest, staged under the auspices of the Philadelphia section, and including an extensive array of professional talent.

The Technical Discussions

Saturday morning was occupied by a technical session. Bertil A. Ryberg, research associate of AATCC at Lowell Textile Institute, reported on experiments as to "Extraneous Matter in Textile Materials", an investigation of the nature of the material obtained by the extraction of wool with ethyl alcohol. E. W. Pierce, of the Ciba Co., followed, re-

viewing recent developments in wool dyeing methods. Dr. Pierce discussed the subject from the practical point of view, covering the water supply, the operations connected with the delivery of the material to be dyed, in as clean and pure a state as possible; the methods of dyeing loose wool, slubbing, yarns and piece goods. At each stage he discussed machines, dyestuffs and assistants. He spoke briefly on cut staple rayon and means of adapting its use in connection with wool.

Milton Harris, research associate of the organization at the Bureau of Standards, was the next speaker, discussing what the mill man can expect from fundamental research. Dr. Harris cited rayon as a development of research, recalling that when it was put on the market, "a committee appointed by silk manufacturers to study its possibilities declared it a passing fad." He cited other instances to demonstrate the importance and necessity of research, though its results may not always be immediately apparent to the practical man who is consumed with every-day problems of work.

Irving J. Saxl, consulting physicist and chemist, spoke next, on "The Quantitative Measurement of Stiffness and Resiliency", demonstrating the application of his stiffness tester in measuring the resistance to bending and the elastic recovery after such deformation in textile fabrics. He showed how these characteristics affect and are affected by fabric construction, different methods of finishing, etc. —and demonstrated the use of the machine for evaluating the effectiveness of softening agents, stiffening agents, and elastic finishes.

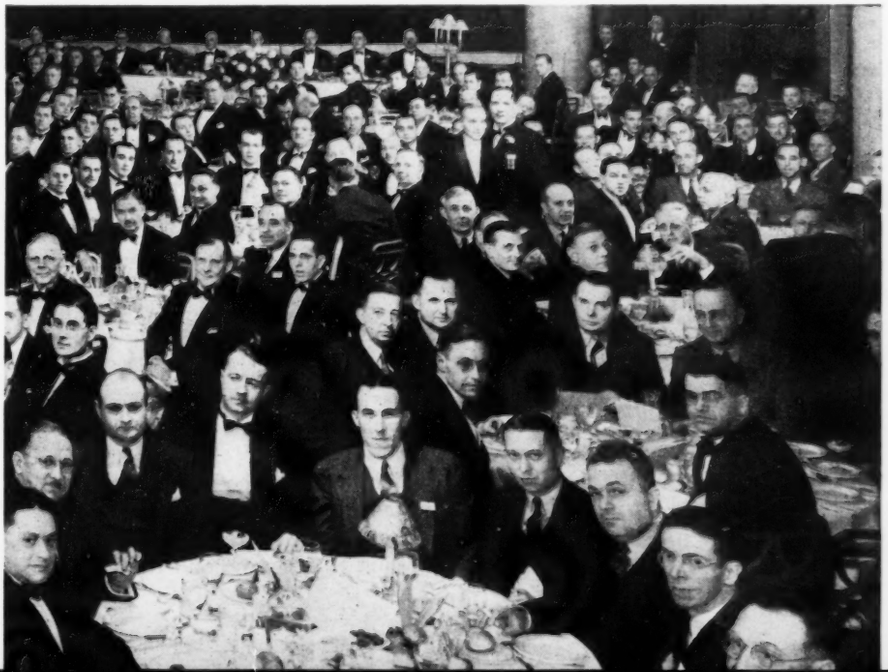
Three methods for testing the crease-resistance of fabric finishes were exhibited and described by Herbert F. Schiefer, of the National Bureau of Standards.

Metallized azo dyes were next discussed by M. L. Crossley, research director of the Calco Chemical Co., the last speaker at the morning session. Dr. Crossley explained that the introduction of certain metals in the molecular structure of azo dyes has a profound effect upon the capacity of the substances to transmit colored light and also materially influences the stability of the molecular system. He described the technical phases of this type of dye, and declared that some of these metallized azo molecules appear to possess much greater light fastness than the corresponding unmetallized products, which makes it possible often to convey fugitive azo dyes into satisfactory commercial products.

The afternoon technical session was opened by a discussion of "Trends in Textile Technology", by E. R. Schwarz, of the Massachusetts Institute of Technology. Mr. Schwarz reviewed recent developments, particularly with respect to efforts to improve breaking strength; the improvements made in test methods for twist, resilience, fastness, air and water permeability, fiber analysis, etc. He discussed the use of the ultra-violet light, the spectroscope, the motion picture camera, the stroboscope, the spectrophotometric color analyzer, and X-ray diffraction analysis in textile technology, and told of progress in the use of the statistical method in the analysis and interpretation of test data.

J. B. Crowe, of the Proctor & Gamble Co., spoke next, on "Detergents and their Application to Textile Processes." He divided detergents into two classes—soaps and new synthetic detergents—and discussed and analyzed each separately as they apply to the textile industry. He reviewed the theories of detergency and the points to be considered in the selection of detergents for use in the textile industry.

Isaac H. Godlove, of E. I. duPont de Nemours & Co., next discussed "Color Measurement in the Dyestuffs Industry with Special Reference to Fastness Tests". Dr. Godlove discussed a number of practical problems in manufacturing, testing and using dyes that were solved by physical instruments and visual methods. He emphasized that the laboratory must employ both the visual method of the consumer, and the analytical or objective method of the dye maker, and described a simple means of making the present qualitative fastness scales more definite and quantitative, to the end that thousands of colors can be cataloged and filed for quick reference, even to the



This photograph shows the majority of the enormous attendance at the annual banquet of the American Association of Textile Chemists and Colorists, at the Bellevue-Stratford Hotel, Philadelphia, on Saturday evening, December 4. Elwin H. Kilheffer was toastmaster at this occasion . . . . .

extent of telegraphing the colors of dyes in code.

A paper on "Suggestive Observations on the Wetting, Mercerization and Dyeing of Cellulose", by Charles F. Goldthwait and Earl McLean, industrial fellows of Mellon Institute, presented incidental observations made during extensive studies on processing cotton yarns.

"A New System of Organic Synthesis and Its Application to Textile Assistants" was described by A. Frank Bowles, of E. F. Houghton & Co.

William D. Appel, of the National Bureau of Standards, who is chairman of the association's committee on light fastness, was the final speaker, discussing the use of standard dyeings in tests for color fastness to light. He discussed the need of uniform standard dyeings and reported on the progress thus far made in arriving at standards.

The final feature of the convention was the annual banquet, on Saturday evening, with Elvin H. Kilheffer, a past president of the association, as toastmaster. A representative of the city of Philadelphia was introduced and brought greetings from Mayor S. Davis Wilson. Robert W. Philip, editor of COTTON, Atlanta, was introduced and made a short talk welcoming the association to Atlanta, where the next annual convention will be held on December 2-3, 1938. William H. Cady, retiring president, Alban Eavenson, the new president, and Louis A. Olney, president emeritus, were other association officials who were presented. Dr. Ivor Griffith, of Wagner Institute, and Franklin Spencer Edmonds, of Philadelphia, were the guest speakers. The convention was concluded by a dance in the Bellevue-Stratford ball room.

Approaching a Goal for

Broader Research in Textiles

THE TEXTILE INDUSTRY enters 1938 with interest in research heightened by certain recommendations and activities during recent months. Speaking as its president, succeeding the late Francis P. Garvan, Dr. Elwin H. Kilheffer submitted to the U. S. Institute for Textile Research, at its meeting in November, the proposition of a graduate institute of textile research. He described a similar project in the paper industry, where a group of men, starting in 1929, began in a small way an institute devoted to the chemistry of their product, which today, as the Institute of Paper Chemistry, has a staff of about 70 and a student body of 50, with an annual budget of around $300,000, with 62 paper mills as subscribing members. Dr. Kilheffer proposed these things for textiles:

> "Establish a textile research institute in connection with a small centrally located university. Equip it with a complete library and general research facilities. Staff it with the very best men obtainable, though initially limited in number. Concentrate textile researches at this one point through the admission of fellows supported by individual or groups of textile units. Provide for post-graduate work by the graduates of existing textile schools and colleges, enabling such students to work to their doctorate.
>
> "Special researches conducted for the sole benefit of those who pay for them. Financial support guaranteed through a scheme of proportional assessments based on some factor—sales, for instance, or capacity, if that is a better measure. At such an institution the textile industry could carry on fundamental research co-operatively. Any unit or group could also carry on applied research. The institute could and would supply trained men and women, trained not only in the sense that they would know all of the then known facts but trained in research and its technique."

Dr. Kilheffer was toastmaster at the annual banquet of the American Association of Textile Chemists and Colorists in Philadelphia on December 4. Here he again submitted the need for some form of organized, co-operative form of textile research, to augment broadly the existing association and private activities. On the same program, Alban Eavenson, president-elect of the association, also stressed the necessity of genuine research on broad lines as a means of maintaining and strengthening America's industrial supremacy. William H. Cady, the retiring president of the association, also spoke on the subject, making the additional point that an organization like the AATCC—which perhaps is doing as much research as any similar organization in the industry—has been all too reticent about its activities and accomplishments, and urging a program of intelligent, constructive publicity of its activities to the textile industry as a whole and to the general public.

These men and their associates in the U. S. Institute, the AATCC, the Textile Foundation, the Bureau of Standards and other agencies have been leaders in advocating wider research activity in textiles. Their associational and institutional activities coupled with the nature of their private interests have demonstrated the more forcibly to them its pressing necessity. In varying degree they have been working at it effectively, and their more recent public declarations are a hopeful sign pointing to definite steps toward the achievement of the goal of all of those who have long recognized the need for co-ordinated research for this industry. They have been rendering the industry a yeoman service, without too much recognition from the industry as a whole. Their efforts deserve wider acknowledgement, and their plans merit the serious and active consideration of the industry.

A great many people are bewildered by the word research, its intricate implications and methods, and think of it as something for the cloistered halls of science and the remote investigations of the specialist. In reality, it is an essential tool of industry, the real basis of every forward advance. Those who are intimately identified with it can admittedly do much toward removing from it the veil of mystery and detachment with which it is clothed in the minds of many men in this industry. The active heads of textile organizations can, at the same time, benefit from a better understanding of research and its objectives.

The Reclamation of Textile Mill Parts

By Hugh Comer, Vice-Pres., Avondale Mills, Sylacauga, Ala.

WHILE the oxyacetylene process now is used extensively in the reclamation of textile mill parts, Hugh Comer emphasizes that its maximum application can come about only through high grade utilization of this process and by stimulating a spirit of co-operation between the repair shop and the foremen in charge of the various departments. This is because replacement parts must be to exact dimensions, with the result that foremen prefer to install new parts rather than reclaimed parts. By the nature of the textile industry the looms and other machinery employed are subjected to heavy duty with a resulting high amount of breakage . . . . . .

A TEXTILE MILL and an acetylene torch are close brothers. One does not buy mill machinery and then a torch. One buys them both at the same time.

The framework of practically all cotton textile machinery is made of cast iron as are many of the moving parts. Breakage starts almost immediately after the machinery is received. As a matter of fact, unless the machines are packed properly, some will arrive already broken. As you know, there are two sources of supply for obtaining replacement parts. One, to buy them new; the other, the welding torch. Of course, there are many parts that cannot be repaired with the acetylene torch but when it is possible to repair the part in the machine shop the saving ranges from 50 to 90 per cent. So large and immediate is the saving that before any broken part is permitted to be thrown in the scrap heap at the Avondale Mills, the broken part has to pass through the hands of specified individuals, and these individuals are alert to the possibilities of the acetylene torch in repairing these parts.

The program of replacing broken parts at the Avondale Mills is as follows: When first discovered, the part is taken to the foreman of the room who investigates the reason for the breakage. The part is then taken to the supply room where the mechanic who brings the part is issued a new or repaired part, and this replacement is then taken back to the machine and put in place. The broken part is then delivered from the supply room to the machine shop where the possibilities of repairing it are studied. If it can be repaired, it is placed on the welding table. If it is beyond repair, it is sent to the scrap heap which is right at the door of the machine shop where it is under the eye of the foreman of the shop and the superintendent of the mill. We are all hoping never to see in our scrap heap any material that could have been repaired.

Now, all of these machines, (preparatory, spinning and slashing) as I have said before, are made up mostly of cast iron parts; cast iron gears, brackets, cams, arms, etc. However, there are many steel journals that are subjected to continual wear. Most of this machinery is fast moving and requires settings to the thousandth part of an inch, and these settings must remain in place. Cotton which is choked up or lumped while passing through the machines creates tremendous pressures and when these pressures are imposed on cast iron parts, the iron breaks.

Due to the fact that the settings have to be so very accurate all through the mill, the management has quite a bit of difficulty in getting the mechanics who are charged with the efficiency of the machines to use repaired parts. To begin with, the mechanic knows that a new part is usually accurately made and because of this, it is easy to set it back into the machine. He also knows that if the welded replacement has not been welded in a workmanlike manner, it is not accurate and it will not fit and will have to be taken out of the machine, brought back to the shop and properly repaired. This takes time, stops the production, and causes dissatisfaction with the worker, who is paid only when the machine operates. Our management has been through this ordeal and we have our fight largely won. We have had our men who do our welding properly instructed. Just a few weeks ago they attended a welding demonstration in Gadsden, Alabama, and they know exactly what will happen if a part that has not been properly repaired is sent

This is an abstract of an address delivered by Mr. Comer before the International Acetylene Association Convention in Birmingham November 12. Explanation of operation of textile machinery, familiar to our readers, has been omitted.

into the mill. Thus we see, that the operation of the acetylene torch in a textile mill very definitely ties in with the human and personal reations. It is easy to see the difficulty that you run into when you build up a worn journal or a cylinder that has to fit within a few thousandths of an inch. This journal must be built up right and accurate to the nth degree and the man who is charged with replacing this cylinder must know that an accurate job has been done in the building.

On the modern Draper loom there are approximately 1,800 parts. Most of these parts are cast iron. There are three movements in this loom. These are the "loom motion," the warp stop motion and the battery motion. All of the loom motions are abrupt. The loom is stopped positively and abruptly whenever any of the threads break, or any of its parts break. As a matter of fact, a loom is known to "slam off" rather than to "stop off". There is no slowing down process, and there is no gathering of speed. When a loom is started, it immediately starts at full speed. The whole setting of a loom is done with fine gauges and with levels. There is practically no guesswork at all, or merely sighting with the eye. A loom is either level or not level; it is on center or not on center.

I have reviewed the picture to let you see for yourself the tremendous possibilities of breakage in the operation of the modern loom.

We feel the absolute necessity of having these parts come to us accurately made and well machined so that when a replacement part is put into the loom we know that it will fit and that there will be no extra length, or high side, or low side.

Proper Work a Necessity

I say this to emphasize how important it is for proper welding to be done in a cotton mill. Every mill keeps a very accurate account of the replacements that go into each of its looms. Accurate reports are made out every two weeks of the replacements required by each mechanic who is charged with the upkeep of a given number of looms. Comparisons of the cost of replacing parts of their work are made and every effort is exercised to keep these costs to a minimum. These mechanics are also charged with the production of their stand of looms. Naturally, they want to keep the looms running. The mechanic has a choice of placing new parts at a dollar per part in his looms or a welded part at, we will say, 50 cents, in his looms. Naturally, he will choose the dollar part rather than the fifty-cent part if he feels that the repaired part will break after it is fitted into the loom, or that it will not fit, thus causing him to have to take it out of the loom and take it to the shop to be machined and brought to size, with a corresponding loss of production.

As I have said before, the management knows this situation, and so our program in the Avondale Mills, in order to get a full benefit of the acetylene torch, demands that the welding operator must be thoroughly trained to do his work well in order that the mechanics at the loom would just as soon have the repaired part as the new part.

I have gone into some detail explaining the necessarily high breakage in looms. I won't discuss any of the other features of our manufacturing processes except just to say that we have to contend with more or less erosion in our dye plant; that grit and dust and choked up cotton lint contributes to our spinning and roving processing troubles; that our slashers run into some little leakage of steam through the cylinder which can be repaired with the acetylene torch.

But, in closing, I cannot help but reiterate that the full benefit of the acetylene torch in the cotton mill can only come about, first, through high grade workmanship, and then by a spirit of co-operation between the machine shop and the foremen of the various departments.

Steel Heddle Acquires Atlanta Harness & Reed Co.

Steel Heddle Manufacturing Company, Philadelphia, Pa., which some time ago acquired the Atlanta Harness & Reed Manufacturing Company, Atlanta, Ga., has announced that January 1, 1938, the latter company will continue to operate as the Atlanta division of Steel Heddle Manufacturing Company. Improvement has been made in the buildings, thus affording closer supervision of manufacturing. Stehedco will build up this division with the installation of more equipment, and ample stock will be kept on hand for quick service and delivery to mills in Georgia, Alabama, Mississippi, and Louisiana. Southern Shuttles, Inc., Greenville, S. C., a subsidiary of Steel Heddle Manufacturing Company, will keep a complete assortment of standard size shuttles in the Atlanta plant, with the staff at the disposal of the trade for personal service.

H. Raiford Gaffney, connected with the Steel Heddle Manufacturing Company for the past three years has been appointed director of sales of the Atlanta division. Guy P. Carmichael, former secretary of the Atlanta Harness & Reed Manufacturing Company, is office manager and will devote his time exclusively to cost accounting and credit of the Atlanta division. Samuel Floyd remains as shop superintendent in charge of manufacturing cotton harness, reeds, and the new department—harness frames. Ralph Ragan is in charge of the twister ring division. John J. Kaufmann, Jr., former treasurer of the Atlanta Harness & Reed Manufacturing Company, has general supervision of the Atlanta division, but continues to be located in Greenville, S. C.

Cowles Expands

The Cowles Detergent Company, 10525 Carnegie Ave., Cleveland, O., now has several subsidiary and affiliated companies merged with the parent company, among which is the Mitchell Wing Company, Cambridge, Mass. Other companies will be added later. E. S. Bassett, president and general manager for many years will retire from active management, and will be succeeded by Aaron L. Mercer, who recently joined the organization as executive vice-president. The personnel of the merged companies in the Cleveland and division offices and in the field will be continued and will be augmented as occasion requires. The same Cowles field men will call on the trade, and the service laboratory at Cleveland will be available to the company's customers.

Methods of Fixing Looms

(Article 6)

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Filling Change Motion

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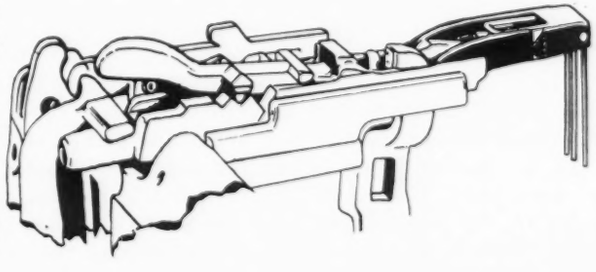
Just a Few Questions?

But now for the all-important question. Are you getting all that you are supposed to out of the filling change motion? All that you have paid for? That question takes in a lot of territory, and I don't know all the answers, but a few questions are in my mind and I would like to take the liberty of asking them. How many bobbin break-outs does each loom fixer have on his section per week? How much production is lost by looms standing with breakouts? How much warp waste can be traced to this item? What increase is there in the supply bill due to broken quills, broken shuttles, and broken loom parts?

Anyone or everyone of those items will cause a red mark to be placed on the deficit side of the ledger.

Now just one more question and I promise to stop. After there has been a breakout on a loom and the loom fixer has worked the loom over to correct whatever caused the breakout, do you keep any sort of record on that loom to see if it makes another breakout any time soon? Does this record extend over more than a week's time? Or could that loom make a breakout once a week for a month and you wouldn't know the difference?



A file to hold weekly breakout reports doesn't require much room and it will be well worth the time it takes to start one. By doing this the file can be checked over once a month, or more often if desired, and any loom repeatedly making breakouts can easily be spotted.

And now we might touch on a few of the more important things that will cause breakouts, broken quills, and filling to break on the change: Be sure that the battery is lined properly. This is the basis or key of the whole changing mechanism, and if the hopper stand isn't lined or set up correctly then some other part of the loom must be set improperly for a change to be be effected.

Have you ever seen a fixer put in a new set of pitman arms and eccentric pins and still have to move the lay as far forward as possible before he could make the quill or bobbin hit in the center of the shuttle on the change? That was because the hopper stand was not lined or put on the loom in a correct manner. I think that lining the hopper stand properly will go a long way toward cutting down on the number of breakouts. [An article on lining the hopper stand with gauges will appear in an early issue of COTTON.]

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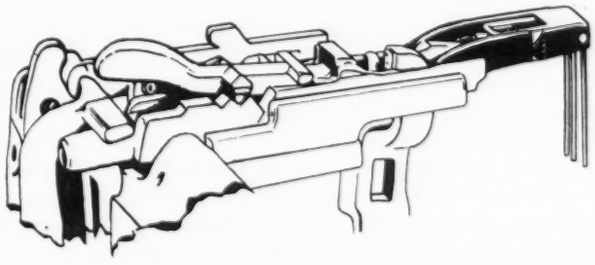

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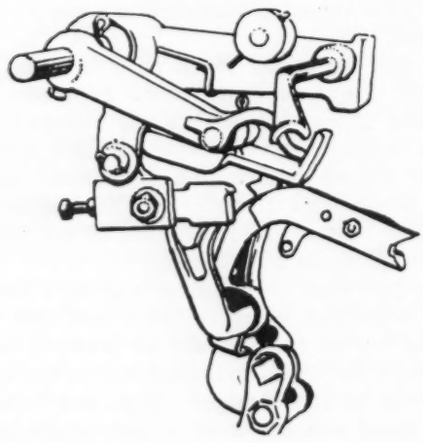
Be sure that the transfer fork is striking the bobbin correctly. By this I mean do not have the fork set to strike the bob-

bin too early, which will cause the nose of the bobbin to be struck first. When this happens control of the bobbin is lost and there's no telling where the bobbin and empty quill may land before the loom slams off. But most likely the new bobbin will land in the shed pretty close to the battery end of the loom.

The Breakout Insurance—Shuttle Feeler

Of all the devices on the loom that might be termed safety devices, I think the shuttle feeler is the one that is most overlooked. A loom fixer wouldn't knowingly pull the shipper handle on when the shuttle is not all the way in the box, but a good percentage of them apparently don't mind if the loom changes filling, or tries to change, when the shuttle is not all the way in the box. It's just a matter of which tooth hurts the most in case there are two aching, for when a loom slams off it might possibly result in a broken sword, a broken frog, and occasionally a battery knocked on the floor. Whereas when it changes filling with the shuttle partly out of the box, there is the possibility of a busted shuttle, broken box front along with the usual breakout.



The purpose of the shuttle feeler is to prevent a change of bobbin when the shuttle is not all the way in the box. When the shuttle feeler operates in this manner it is said to "protect." The shuttle feeler can and should be set to work correctly; it will greatly reduce the number of breakouts, etc., when it is working properly and protecting.

The shuttle feeler should be set so that it will permit the filling change motion to operate when the shuttle is in the box, but so that it does not bind when a change has been made by hand and the loom crankshaft is on front center. The feeler should have play of about ¼-inch when on the change. When the loom is running and the shuttle feeler is at its back position, I have found it better that this position of the feeler should be from ½ to 1 inch up on its lifting stroke from its fartherest possible position back, which would be against the loomside on some looms. I find that by having the shuttle feeler set slightly up on the stroke the feeler raises the latch in time to be struck by the bunter when a change is indicated. On the other hand, if this allowance is not made for the feeler, the motion may attempt to change several times before a transfer is effected.

A few of the things that will cause the transfer not to change immediately are: Having the projection on the straddle bug set away from the filling motion finger; having play or lost motion between the long lug and the picker stick, and having the picking cams set late. Any one of these things will cause the shuttle feeler not to rise in time to make a change of the bobbin. I have seen loom fixers lower the power strap, increasing the power, in order to make the loom change, when the trouble was caused by some one of the things mentioned in the preceding sentences.

Do not set the shuttle feeler so low that it strikes the lay when a change is indicated. And while on the subject of the shuttle feeler, I have seen so many fixers pack behind the shuttle feeler stand instead of filing it to get the feeler the proper distance from the mouth of the box. When the feeler does not clear the box front and the nose of the shuttle correctly in order to protect, the feeler stand should be filed to make the clearance right and not packed. When the feeler stand has been filed and securely bolted to the loomside it is in the correct position and will stay in this position, but if packed with baling wire or a shuttle spring, these may vibrate out.

The working parts of the transfer should be watched to see that they are not worn too much. If the lip on the latch or if the bunter are worn very much, a change will begin but the latch or bunter will slip, causing a part-change, and the bobbin is dropped before it reaches the shuttle. A breakout or broken parts usually result before the loom stops. The bobbin support and bobbin butt guide should not be run when badly worn as they will allow the butt of the bobbin to be held lower than the nose which is just the opposite to the transfer fork being set too deep.

The butt of the bobbin will sometimes strike the hopper stand on the change if the battery disc shoulder is worn. A washer especially made for this purpose may be placed between the hopper stand and the disc and will sometimes correct this condition without having to replace the old disc with a new one.

Rocking of the disc can and does cause breakouts for when the transfer hammer strikes the bobbin, the bobbin has a tendency to roll away from the transfer hammer the amount that the disc rocks. This does not permit the bobbin to be struck squarely by the hammer; thus the bobbin does not go in the center of the shuttle spring. The feed pawl and stud are usually responsible for the rocking of the disc and may be replaced with an eccentric stud which will remedy this.

Broken quills are often the result of the rib or shoulder on the picker stick guide being worn or broken off.

When the picker becomes so worn that the rings on the bobbin will not correspond with the grooves in the shuttle spring, caused by the shuttle going too deep into the box, then a piece of leather may be placed behind the end lay strap to correct this.

Of course if the picker is very badly worn it should be replaced with a new one.

Pickers that are not parallel will cause breakouts. I believe pickers that are a trifle high will cause fewer breakouts than a picker that is low, but there is no excuse for either condition existing as pickers can and should be paralleled.

A worn bumper allows the picker stick to come too far forward and not only makes it difficult to parallel the picker but also causes broken quills. The same is true if the bumper is too thick because the picker stick guide does not fit flush with the lay and causes quills to be broken. If the top holder spring is too tight it will cause the nose of the bobbin to be forced away from the top holder and thus away from the shuttle. This will prevent the bobbin from going straight into the shuttle when it is changed.

Some other things that will cause trouble during a change of bobbins are as follows: Loose or worn crankshaft bearings, loose or worn pitman arms, worn eccentric pins, loose or worn rocker shaft boxes, worn rocker shaft, and a loose bolt holding the breast beam to the loomside under the hopper stand.

Filling Breaking on the Change

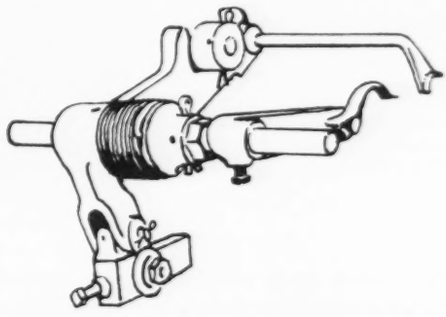
I would like to say before mentioning filling breaking on the change, broken filling and knocked out filling that I don't expect to cover this subject in detail at this time. I am only going to list a few of the causes. I will appreciate it very much if some of you readers could find time to send in your knowledge covering this and other subjects so that we can profit by your experience.

If the bobbin disc, stud, or feed pawl are worn to permit the bobbin to turn in the battery enough to break the filling before the next change takes place, a full bobbin may be thrown into the quill can. This, of course, is not a filling break on the change, but it does cause filling to be knocked out, and is sometimes quite hard to detect, being mistaken for a filling break on the change.

Before we started conditioning our filling we sprinkled water over it and then let it sit awhile before using it. Occasionally the filling would dry out before we got around to using it, so in such instances we usually sprinkled it again just before running it in the loom to be sure that the yarn was damp. I noticed, while making a shuttle test, that the filling was being broken due to loose lint, that had dried, being on the filling. When dry, this loose lint resembled hard size very much, and was causing approximately 10 per cent of the filling breaks. Later when we started conditioning the filling and then covering each box until it was used, the number of breaks due to this condition was reduced. But we will discuss conditioning of filling later in this article.

Any rough place on the bobbin or shuttle, which includes the eye, will cause the filling to be knocked or thrown into the can.

Any roughness on the transfer fork or bobbin guide will cause the filling to be cut. Too much power on either end of the loom may cause the shuttle to bounce or move away from the picker, which will sometimes allow the filling to loop on the whorl in the shuttle eye and break the yarn. The same condition exists when the lay has slipped because the shuttle is forced away from the picker on the change, thus making a weak pick to the lever end of the loom. This weak pick will loop the filling occasionally and break it.



Some mills run bobbins that are too long for their shuttles. If the bobbins are just about as long as the slot in the shuttle, the sharp edges on the walls of the shuttle, just behind the shuttle eye, will keep the filling from threading properly and the yarn will be broken. These walls should be trimmed down until they present a smooth rounded surface. The whorl in the shuttle eye should be exactly in line with the end of the bobbin. The bobbin should be in the exact center of the shuttle. It is hard to center a bobbin properly with the eye. I have found it best use a gauge to measure the distance from the bobbin to the walls of the shuttle. An ordinary lead pencil run between the bobbin and the walls of the shuttle will serve as an adequate gauge.

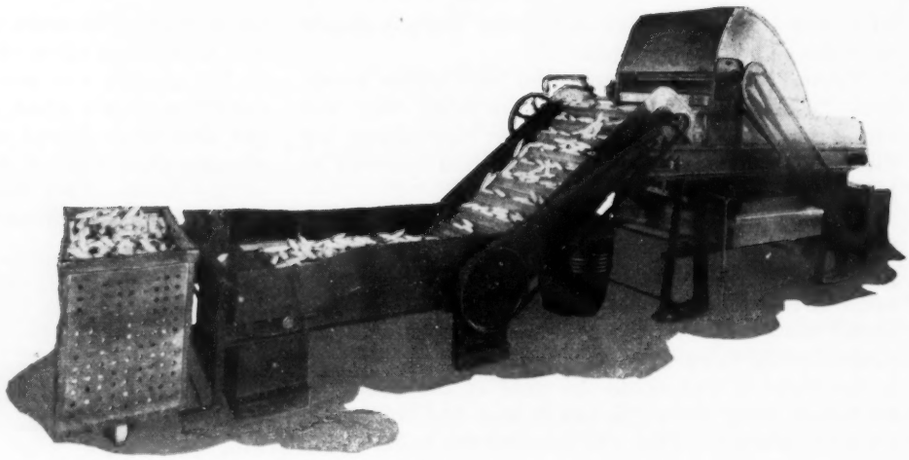
When the loom changes filling, the transfer hammer should strike the rings on the bobbin between ¼-inch and ⅜-inch before the fork hits the nose of the bobbin. If the fork and hammer strike the bobbin at the same time the nose of the bobbin is snapped down—breaking the filling.

Some of the broken filling maybe due to the way in which the battery hand is threading up the battery. And then occasionally the filling is pinched by the battery hand while filling the battery.

Conditioning of Filling

In addition to all of the troubles that are encountered by the loom fixer that may be classed as filling faults and that are directly traceable to the mechanical condition of the loom, we have other conditions existing for which he is not responsible. For instance, kinky filling that is caused by too much twist in the yarn, by the yarn not being properly conditioned, and by varying humidity conditions. The kinky filling caused by mechanical defects in the loom can be eliminated by the loom fixer, and he will do so if given time, but he does not have a chance to do so with the other kinky filling mentioned; it is a factor over which he has no control.

It is necessary to allude to an experience in a spinning room, but in no way am I attempting to belittle those men who run spinning rooms; I am not a spinner myself and know only what I have heard.



The machine at the right is used for conditioning filling. Yarn is dumped on the loading apron and is carried up to a brass apron with bars spaced slightly apart, on which the yarn is sprayed both above and below with conditioning fluid to give a quick penetration and rapid setting of twist . . . .

When the spinning is running poorly, and we have tried everything else, we sometimes add a little twist, somewhat, I imagine, like dropping the lug on a loom to get a little more power when we can't make the loom run any other way. This added twist finds its way into the weave room and shows up in the cloth as a kink. The loom fixer scurries about inspecting his looms, checking on settings, and finally puts a bit more bristle in his shuttle to correct the kinky filling, hoping for the best. If the best doesn't materialize he is called to the cloth table to look over his seconds—which he has tried in vain to prevent.

Next, if the humidity in the weave room is allowed to vary from hour to hour, the fixer and the weaver are going to have trouble, not only with kinky filling, but with the warp yarn, and the mechanical operation of the loom, such as slamming off, etc. There was the time when we had to wet the floor under the looms to keep up enough relative humidity, but those days are gone forever. The automatic humidfier is here. But it is a good idea to have one man, the second hand, to read the wet and dry bulbs periodically to see that the relative humidity is correct. This requires a bit of time, but think of the increased production.

And last, the loom fixer has no justification over unconditioned filling. There was a time when the overseer of weaving tried to condition his filling by some manner or means, often storing it as long as possible before running it. (Conditioned filling is that in which the twist has been set.) If the filling yarn were balanced, such as thread for sewing, there would be little need to condition it. After it has been conditioned it does not have the tendency to roll around itself and kink when it is pulled off of the bobbin.

Mentioning a few methods of conditioning filling, with varying degrees of success, we first have moistening the yarn with water. I have seen this done just by sprinkling the water over the filling boxes with an ordinary garden sprinkler. This method may work unless the filling hauler, who does it, gets in a hurry and doesn't take time for the water to run through the sprinkler head, but dumps a can full of water on top of the filling.

In any event, the filling on top gets awfully wet while that on the bottom remains awfully dry. If there is lint flying about, or if the filling boxes have lint or dirt in them, the water causes it to cake on the yarn, which doesn't cause the filling to run any better.

Another method, somewhat antiquated, consists of laying the filling on a rack of some sort, in a close place, and turning in live steam. I have heard of humidifiers being used to spread the steam evenly. Some mills have a special room or oven for this purpose.

The most effective methods of today for filling conditioning consist of passing the filling through a spray of conditioning fluid, or some method of causing the fluid to penetrate the yarn. I shall not go into the operation of the various methods, but I do think they are wonderful means of setting the twist. The fluid is comparatively inexpensive and the quality of the cloth and the production gained more than pay for their use.

I remember when I was fixing looms, not so many years ago, I consistently tried to prevent any kinky filling on my job. It was prevalent throughout the weave room, but I took an especial pride in keeping it off of my job. To prevent a loom from kinking filling I often had to tighten the shuttle spring, keep the shuttles perfectly free of barbs and splinters, watch that no high or low harness eyes were in the harness, keep the bristles in the shuttles—a mean job, especially when the night man had a habit of cutting them out as fast as I was putting them in—keep the power off the looms, watch the depth of the head and crown gears, and even change the cam and crank shafts. One day, without my knowledge, the mill bought a filling conditioning machine. The trouble of kinky filling disappeared overnight. I felt as if I had suddenly gotten out of debt. Then about the time I was beginning to consider myself the prime kinky filling preventer in the mill, I discovered that a simple little machine and a bit of chemical, combined with water, had done the job.

From then on I had plenty of time to devote to other points of loom fixing besides the elimination of kinky filling. If it worked in our mill and in others, it will in yours. Try it some time.

Some Further Observations by

The Spare Floor Philosopher

Part 3

THIS series comes from the pen of a practical southern mill man. In the July, 1937, issue John Simpson, the character, a "spare floor philosopher", was introduced; he gave a few pointers on cutting the cost of supplies in the spooler room, talking about his throw-out-hook belts, keeping belts clean, and the springs on a spooler. In the December issue he continued his philosophy. Here he is again.—The Editors . . . . . .

"SORRY, old man, I had to run off and leave you just as you got ready to tell me what you did when you got a smart spell," I told John Simpson, in apologetic tones, as I walked up to him standing near the scales. "I just had a few minutes to spare and when they ran out I had to leave."

"That's all right," he said. "I had some work to do. But you know," he added, "when I get to talking in a big way I get happy and I don't know when to stop. My mother said I ought to've been a preacher. She said if I'd been a preacher I'd a got paid for talking. But talking is my pleasure, and a man usually pays for pleasure. If talking costs me anything I only pay for it in wasted time."

"John," I said, earnestly, "I believe some people waste two-thirds of their lives just talking."

"I don't believe I waste any time talking about the spooler room," he said, "because when I talk about the spooler room I get interested in it, and if there is anything in the world a man ought to be interested in it should be his job. I always keep my job in pretty good shape, but sometimes I get to thinking how important my job is—not important in the sight of other people, but important to me. And when I get in this kind of a mood I always get a whole lot smarter, and I go all over by job trying to look at it through the eyes of the ones whom the job most concerns. I don't just try to put everything in good shape; I try to make everything perfect!

"Usually, in going over the job I find a lot of nuts and screws loose. Sometimes I find a dry bearing the oiler has failed to get. Sometimes I find a leaking oil box where lint has clogged a back drain. I always find bent pieces that need straightening up."

"Do you fix these things as soon as you find them?" I asked.

"No," he said. 'Some of the jobs are too big to do right that minute, and some of the jobs have to be done while the machine is standing, and you can't always stop off one of these high-powered automatic machines because it takes care of such a large amount of the production."

"What good does it do to go over your job like that?" I asked him.

"It does a lot of good," he averred. "I can give you a good illustration: My brother has a car. A few weeks ago the clutch started grabbing. He took it to the garage to see what the trouble was. The mechanic told him he needed a new clutch, which costs four or five dollars. But my brother felt like he couldn't spare that amount of money right at that time, so he just let the clutch keep on grabbing. A few days ago he wanted to go up town. So he got into his car; started the motor, let out the clutch and the car made several jumps like a bucking horse and then it made one of the awfullest rackets you ever heard. He 'phoned the garage and they pulled it in, and then tore it down to see what the trouble was. They found several of the gears in the transmission with teeth stripped and a bent drive shaft. He could have averted all that trouble and saved about thirty dollars by having his clutch fixed when it first started to giving him trouble.

"All machines are brothers under the paint," he continued, "whether it's an automobile, a spooler, a spinning frame, or a loom, makes little difference. When one part gets out of order and is left alone it is going to cause the part next to it to also get out of order . . ."

"Name something here on your own job," I said, breaking in on his big speech.

"I hate to let people know that I've had that kind of experience on my own job," he said.

"None of us is perfect," I said.

"You remember the other day I was telling you it wouldn't do to have the spooler motor belts too tight?"

"Yes."

"Well, I used to run those belts too tight—I didn't know it at that time, though. I used up a lot of belts and had a lot of trouble with the bearings next to the belt pulleys. You see, our spoolers are the kind that have only one motor to pull both cylinders. The belt pulley on one side is fastened on the cylinder shaft. The pulley on the other side is fastened on

Pointers on Cutting the Costs of Spooler Room Supplies . . .

a short shaft about six or eight inches long that has a bearing on each end and a gear in the middle. The gear connects with another gear on the cylinder shaft. And then right beside this last gear is another bearing."

"One bearing on one side; three bearings, one short shaft, and two gears on the other side," I said, to see if I understood him.

"That's right," he said. "Now when this first bearing next to the belt would start rattling, I would listen to it and think, maybe it'll get all right after while. I reckon I thought it would cure itself. I just let it go. A few days later it would get to making such a racket I would go into it and find that instead of it being just one bearing it would be three bearings, two gears and a shaft, all to be replaced by new parts."

"I bet that whole outfit cost the company a lot of money," I said.

"Yes," he agreed, "and just think, I could have put in that bearing, next to the pulley, when it first started to rattle and that would have been the end of it. And if I had not tightened the motor belt so tight I would not have had the trouble in the first place."

(To be continued.)

New Tire Cords for Heat Resistance on Heavy Duty

Bibb Announces New Heat-Resistant Cord

W. D. Anderson, president of the Bibb Manufacturing Co., Macon, Ga., announced late in December a new heat-resistant cord for automobile and truck tires, which has been developed by the Bibb and on which patents have been granted to the three members of the Bibb organization by whom it was devised. Mr. Anderson heralded the new cord as "the most outstanding development" in the textile industry in fifty years.

Much greater life in service and prevention of deterioration which comes in truck and bus tires through the growth or increase in the size of the tire and the cracking of the tread are listed as the outstanding features of the new cord.

Mr. Anderson reported a customer's laboratory test showing an extremely long life for a tire made of the Bibb heat-resistant cord in comparison with tires made with ordinary and synthetic cord. He explained that in the new heat-resistant cord, the fact that the essential gums and waxes of the cotton fiber are fused and bonded together in the process of manufacturing the finished cord largely prevents both growth in the tire size and cracking of the tread.

Tires made of the new cord have been tested under extreme conditions in all parts of the country. Some manufacturers are already using it in their tires and others are experimenting with it. Shipments have been made to manufacturers in other countries as well. Expansion of facilities for making the cord has already been necessary.

Inventors of the new cord are Russell B. Newton, superintendent, and E. C. Gwaltney, acting agent, of Bibb's plant in Columbus, and L. A. Graybill, the company's chief technologist.

Designed primarily for use in automobile and truck tires, the new cord is also applicable in the manufacture of fan belts, power transmission belts, hydraulic brake hose, etc., it is announced.

A more detailed description of the new Bibb tire cord is being prepared for publication in the February issue of COTTON.

New Goodrich Cord Reduces Heat

A new type of cotton tire cord, designed primarily to reduce heat generated at high speeds in truck and bus tires, has been announced by The B. F. Goodrich Company, Akron, Ohio, which operate the Martha Mills, Thomaston, Ga., where the new cord is being made.

The new cord was developed from efforts to reduce, in the construction of tires, the amount of heat developed in the tires when run at high speed, and the development came in changing the construction and make-up of the cord itself. The usual cord, as it comes from the fabric mill, has an elongation of anywhere from 15 to 22 per cent at 10-pound load. It was realized that in the process of building a tire, a large portion of this elongation is lost and that, during the life of a tire, additional elongation disappears, with the result that tires built of ordinary cord increase considerably in dimensions during service, which puts unequal strains on different portions of the body of the tire.

In the making of the new cord, known as Hi-Flex, this so-called artificial stretch is removed before the cord is built into the tire, and the cord behaves in an entirely different manner from the cord heretofore known as high-stretch cord, during the building and service life of the tire. The new process results in a cord of smaller gauge, not because of less cotton but because it is more compact, and after it is stretched, it returns to its original position. There is no slippage of fibers against each other.

The greater compactness of the new type of cord, it is explained, makes possible a tire with the same amount of strength yet with less overall thickness, resulting in a decrease in the amount of heat developed. This high density cord has improved the elastic properties, and its greater flex resistance allows structural improvements in tires which increase the flexibility, reducing to a minimum shoulder breaks and sidewalls breaks that result from excessive flexing. The high recovery of the new cord maintains the physical construction of the tire, reducing the tendency to grow or increase in dimensions.

The new cord is particularly well adapted to truck and bus tires, it is explained, but it is used in passenger car tires, for the reason, chiefly, that since the cords are more compact, more insulation between cords is possible, with the same number of cords per inch.

"Cordura" Rayon for Tires

During 1937, E. I. du Pont de Nemours & Company, Wilmington, Del., announced several new textile developments, including a new synthetic fiber, known as "Cordura" rayon, which, it is pointed out, has found a place in the textile field where exceptional strength and resistance to heat are necessary.

The present chief use of "Cordura" rayon is in the manufacture of tires for heavy-duty trucks and busses. It is also used in the manufacture of an especially strong, smooth and impermeable sail fabric. A sail made from this new synthetic yarn was used by the Cup defender "Ranger" in the 1937 America's Cup races.

Other du Pont developments in the textile field during 1937 include an improved process for crush-proof velvet, a flame-proofing agent for all sorts of fabrics, and a water-soluble synthetic size for rayon yarn.

CURRENT TEXTILE TOPICS ....

Talk of the Month

DECEMBER was the end of a rather disastrous year for the cotton industry. It marked the extreme low of a recession that wiped out profits of an abnormal forward push culminating in the spring. It marked the extreme of curtailment, which was both a reflection of poor business and a final exhibition of good mill judgment. One other thing about the month: December brought a turn of demand which was promising for the current year.

Curtailment again; we live but don't learn

It is difficult to analyze the year 1937 in its conflicting textile aspects. One cannot readily say that mills pursued an unsound policy in carrying their operations along as large as they did into the fall. Fundamentally, some mills found the situation counselling restriction of output back as far as the spring. It was recognized that the high pace of production could not be maintained.

On the other hand, the fall brought threats of wage and hour control, not to mention talk of processing taxes again. Naturally that would mean production at higher cost and it was reported that some manufacturers were accumulating goods against the period when new conditions might obtain. The trouble with this program was that it coincided with a persistently inactive market. Buyers did not need goods and they were not stampeded into buying to forestall higher prospective prices.

During the recovery the textile industry has stressed the policy of operating against orders, or avoidance of production for stock. The complications of 1937 make it difficult to appraise the unfortunate turn of conditions in the last half, notably the experience once more in poor times of sales at prices below cost. The situation was unprecedented and therefore not comparable to unsound periods of other recessions.

Textiles Never Have Normal Period

Nevertheless it did have one familiar angle which came to the fore as prices sank steadily lower on accumulation of merchandise and consequent lack of demand for mill production. That was the evidence that capacity is excessive on the currently accepted basis of operations, except for limited spells when the industry is behind demand and works to catch up. In other words, the textile industry remains with the problem of peaks and valleys.

Adversity once more has a lesson. Over-production brings ruinous prices which destroy the benefits of a period of profitable operation. It may be that peaks and valleys can never be leveled off. Nature itself does not run an even course. Witness crop variations. Production precedes distribution. People buy in spells and then lay off. New production must wait for new demand.

Once more let it be cited that the complicating wage situation was some excuse for over-production late in 1937. It would be satisfying to feel that the extreme weakness of prices then resulting was not altogether from a reversion to the unsound practice of by-gone years. But, regardless of the causes of the disastrous period, one notable effect came when the big printcloth section finally adopted drastic curtailment.

Immediately, there was a quickening of demand and definite stiffening of prices. If the mills did delay in adjustment of production to demand, at least they took drastic measures in advance of the turn toward better business in the market. And they did make a concerted move, though by individual action, which gave buyers warning that they must order ahead if they wanted goods for the spring business. Thus the foundation was laid for a return to reasonable prices as business developed, rather than selling at the bottom first to promote volume.

Cotton Production Reports Affect Buyers

Another complication for the goods market, one which no doubt contributed to an exaggerated weakening of the price structure, was the series of progressively increased estimates of cotton production. The indications by early fall that an unprecedented crop was in the making naturally was noticed by consumers of goods. Bearishness was exhausted by the time of the last official estimate in December, but this crop and the general business recession combined to aggravate the cotton textile situation.

Mid-December reports in the market indicated that printcloth production was down 30 to 35 per cent from the peak. It was also figured that many mills might shut down at the year-end and bring operations for the month to 40 or 50 per cent under the high rate early in 1937. The indications at the same time that prices were on the upturn, with a fair spurt in buying noted, put an encouraging aspect on the market.

What the new year would bring forth remained problematical, with leaders loath to predict conditions. The recession in general had provoked a variety of forecasts which left the first part of 1938 a vague prospect. There was one December element which suggested that buyers might overstay the market, viz., the placing of orders by government departments. Those who waited lest they fail to get the lows of the market were said to be risking late deliveries in the spring, as well as rising prices.

IT IS THE experience of mills in New England that good times for the nation bring a business in cotton goods that promote profits, but poor times, either depression or temporary recession, are distressful. And the latter times are a period of industrial stock-taking, so to speak. Fundamentals are discussed and

the future of cotton mills appraised from a national standpoint.

Mid-December found the fine goods division of cotton manufacturing still waiting for a turn in demand. The market had been slack since spring. The big division of coarse goods was beginning to show signs of life, by reason of a spontaneous movement toward sharp curtailment of production as a final resort.

Producers of fine goods, notably a New England output, had adopted cautious production for many months, but with relatively small effect. It was felt that, since they had kept output well in hand, their business would pick up first. Inquiry broadened early in December. Yet at the time of writing the actual ordering of goods was limited.

New England Mill Situation

Curtailment and Idleness

Few mills were operating more than three days a week toward the end of the past year. Some factories were still facing the prospect of complete idleness temporarily. The severe recession, coming after only a comparatively short period of recovery (especially in view of the extra long period of distress in textile mills of the district) was a strain upon weak units and several were again in trouble.

These conditions were the occasion for a serious consideration of causes for an unhealthy condition latent in the cotton mill industry. Six months of profitable business, followed by a similar period of counterbalancing losses, point to weakness. Analysts of the industry in this district have been giving concern to this condition and suggesting remedies.

It will be recalled that some leaders in the industry a dozen years ago or more were decrying the third shift and child labor. They also were committing themselves before the inception of the NRA to the theory that only by the coercive force of government suasion could there be induced an adjustment by the intransigeant small minority to reasonable conditions of operation.

The Chiseler Still is With Us

NRA came and went. It invoked sound principles for a time in the cotton industry, but a reversion to the third shift, even by a few mills, is sufficient to undermine the position of producers at large. It is the old practice of the chiseler who has always preyed upon other human beings, working to take advantage of their social principles.

Thus, regardless of the natural preference for voluntary control, the industry here shows an inclination to seek new compulsory measures by government. Russell H. Leonard, president of the Pepperell Manufacturing Company, proposed that the Cotton-Textile Institute should ask Congress to abolish the third shift by legislation.

"Unless the third shift is eliminated," he wrote to the president of the Institute, "10,000,000 more cotton spindles will be junked in another decade of textile depression. No one who has studied the industry and whose vision is at all clear has failed to realize that the productive capacity of cotton textiles and rayons on three 40-hour weekly shifts is completely out of relation to any conceivable demand."

By coincidence, an exhaustive study on "The Growth and Decline of Cotton Spindles in the United States" was distributed by Charles T. Main, Inc., engineers, which bore out substantially the prediction of Mr. Leonard. The study was the subject of a recent address by A. W. Benoit of the company before a meeting of the American Society of Mechanical Engineers.

It is Mr. Benoit's finding that, on the basis of cotton consumption, the country could operate 41,000,000 spindles 40 hours a week; 34,300,000 at 48 hours; 30,500,000 at 54 hours; 20,600,000 at 80 hours; 15,000,000 at 110 hours. The greatest likelihood is that the industry will settle down to two 40-hour shifts, indicating that probably some 5,800,000 spindles are still to be scrapped.

Congress Quits Work After Months Rest

At the time of writing the wage and hours bill was still in an indefinite stage at Washington. The expression of New England textile leaders in this case was also in favor of government regulation, but only under certain conditions. One of these was that there should be no discrimination and another was elimination of the "grave yard" shift.

Under mortgage foreclosure sale, the Taber Mill of New Bedford, Mass., was recently bid in by the R. F. C. A net deficit in the claims of the R. F. C. of $425,032.57 remained. Edmund J. Brandon, a Boston attorney, was named trustee. It was the hope that the plant could be sold or leased to some one who would operate it.

Hearing on a petition seeking dissolution of the Narragansett Cotton Mills, Inc., of Warwick, R. I., was called for Dec. 29.

Directors of the Ponemah Mills of Taftville, Conn., recently selected Arthur B. Barnes of Fall River as treasurer.

Floor Hazards

THE PROBLEM of keeping empty soft drink bottles off the floor was solved by one mill in a rather drastic but very effective fashion. After the overseers had expressed the thought that it was not possible to solve this problem, the superintendent jockeyed them into the position of promising to adopt any expedient which he might propose which would be effective. Following this, as the superintendent made his rounds of the mill, whenever he observed a soft drink bottle on the floor he picked it up, made a note of the time and department in which it was found and handed the bottle to the overseer. Unless the overseer could find the employee who was responsible for leaving this bottle on the floor, he was required to carry it constantly in his hand until the end of the shift. Being thus required to publicly acknowledge the failure of his department to observe the rule with respect to placing these bottles in the containers provided, it was not long before every overseer had, in his own individual fashion, discovered a way of ascertaining the guilty employee and thus putting an end to this unsafe practice. — *National Safety Council News Letter.*

"THE SITUATION"

As Seen Across an Executive's Desk

December 18, 1937

THIS is inventory time. It is the best thing in the world to stop short occasionally and take stock of what we have and where we stand, both in point of material possession, business assets and personal morale. It is easier to face the future knowing we are broke and able to do something about it than it is to feel that we are broke and doing nothing about it.

Among other things that we find at this stock-taking is a "Recession". We have never had, in a short period of time (approximately 120 days), a similar decline in values such as we have seen during the last four months of 1937. Values in all industrial stocks have fallen, and we find a sympathetically similar drop in textiles. An atmosphere of gloom has been rolling in like a fog from the Eastern market centers for some weeks now. This is natural, for folks in the city feel depression quicker than those who live in the country.

Buyers of goods for retail stores in sections which have not as yet been in the grip of gloom have gone to market expecting to place orders, only to decide upon arrival that things were too slow to place them. They became alarmed at the state of the nation and almost in a panic reconstructed their buying policies. The sellers had given the germ of pessimism to their own customers and the latter returned home empty-handed and decided to go on the hand-to-mouth schedule again, not to place commitments ahead for the year, all of which did neither buyer nor seller any good. Such is an example of the influence of pessimism on an unsteady market.

"Recession" and "Depression"

It is true that we have a recession of business. A bad recession, and we find that the tide is way out. Some folks say they can not tell the difference between recession and depression except in the spelling, but there is a difference. Recession is a natural slackening up of business for any reason but depression is when we let recession break down our morale. The late depression hurt us so badly that we are acting now like burnt children scared of fire, and while we may be a little ashamed of the way some are yelling out loud about it we hardly blame them. The bottom dropped out from under—but are we going to let the recession turn into a depression? We must go ahead and work things out the best we can, keeping a stiff upper lip. Hard Times come and Hard Times go, and if the wolf comes to the door invite him in and stew him up for hash!

To a large extent the textile recession is due to the speculation of the past year, or I should say, the last six months of 1936 and the first six of 1937. We allowed ourselves to be fooled by the speculation, forgot the old law of supply and demand, and ran hell for leather feeling that we were on safe ground because we ran "on order". Those orders were jamming up somewhere and now we get the backwater. Washington uncertainty and inequality of legislation undoubtedly hastened the reaction.

Mr. and Mrs. Consumer have slowed up in buying; the chain stores have adopted the old hand-to-mouth buying policy and there is a large national inventory of goods on hand in warehouses over the country. At other times we have had such situations and we have worked things out of the tight spot by systematic curtailment, careful placing of orders (for it does no good to give stuff away just because you can't sell it) and making up our minds to keep our heads clear and look ahead to brighter days.

We must not overlook the fact that during the last cotton year (August, 1936, to August, 1937) there was a larger consumption of cotton than ever before in a like period of time. It was chewed up by the mills but not digested by the public. When we are intemperate we have a hangover, and that is what this recession is today. It is bad to face over-supply for it always means price trouble, too. Cotton goods are selling today on a basis which makes impossible their production at a profit. Our manufacturing margins are cut to the quick. Even when we sell, delivery is often not specified and an approximate drop of 30 per cent in cotton consumption this December is offered as comparison to the record-breaking consumption figure of December, 1936.

Good Cotton Scarce

There are many elements of loss in times such as these: one type of loss is seldom commented upon, but the mills who are probably making the most financial sacrifice now are those which are trying to keep up their standards of quality on the present business levels. They are having a hard row to hoe. For one thing, it is almost impossible, despite the largest cotton crop on record (18,746,000 bales, December estimate), to find the good grade long staple cotton that is a prime requisite for so much of the cotton goods produced. The grade in this year's crop is much worse than in years. The Mississippi Delta has always counted upon its high grade and long staple as factors so usual to its cotton that the lowering of grade by unseasonable rains this year has brought the same expression of startled surprise to the Deltans as if the sun had risen in the West! To mills accustomed over generations to specifying good grade and long staples by just saying casually "Delta cotton" and then giving specific descriptions, the same sickly wonderment has come. It is decidedly a big problem to the superintendents and the operating executives of mills accustomed to best type Delta cotton to get the same results from the raw product which they are now receiving out of this year's crop and that which they have in other years received on the same description. Specifications for finished goods are the same but the best raw material available is not up to the standards they are accustomed to using.

There is also the element of loss entailed on the part of mills which carried a large supply of cotton on hand, and with the unusual and rapid drop in the market (50 per cent less today than one year ago) show a large inventory loss on raw material. Many

hundreds of thousands of dollars are on the red side of the ledger for this reason alone.

The Washington Scene

When Congress met in special session there were at least four definite planks which were on the "must" list for legislative work:

Revision of Revenue Act—which contemplated (1) simplification; (2) modification of undistributed earnings tax; (3) readjustment to equitable basis capital gains and loss levies.

Farm Relief: Program financing not decided upon.

Wage and Hour Legislation: Passage of the Black-Connery Bill with some changes.

Revision of Anti-Trust Law: By (1) authorizing Federal Trade Commission to prevent the use of "unfair or deceptive acts and practices" as well as "unfair methods of competition". (2) By making unlawful the acquisition by one corporation the physical assets of a competing corporation where monopolistic tendencies and conditions result.

All of these affect the textile industry, and at this time it seems that the revision of the Revenue Act is most needed, although to date the session has devoted its time to wrangling over wage-hour and farm legislation. These are but patent-medicine for economic ills, but we do need, most desperately, the purging of undistributed earnings tax and capital gains tax from the revenue act. These two pieces of vicious tax have done as much if not more to hamper business than any other thing. Many students of economics blame them almost entirely for the present recession. They say that once revoked we shall feel almost immediate effect of a pick-up.

The farm program financing has been discussed from two angles, a processing tax or income from a separate revenue measure. The latter seems to be on the boards today. We have heard from certain sources that the processing tax might stimulate the market as people recall the wild spree of buying in 1933 before the tax became effective. However, we all know that this is not a healthy sort of a stimulant and cannot fail to do havoc with financial statements and mill activity in the long run.

Farm leaders do not favor a processing tax and on December 15 weary from long wrangling the Senate voted listlessly to "spend such sums as necessary" to carry out the farm program, without, however, providing the source of revenue from which sums are to be derived, and no limit to the total amount which could be spent, nor any definite manner in which it should be spent.

Farm Bill Glossary

The farm bill itself contains so many different expressions that we feel it cannot be understood by the average person unless they know what such expressions mean and so we are giving a sort of glossary of terms and the present meaning:

Ever normal granary: A system designed mostly for wheat but applicable to cotton where carryovers in good years would be stored or warehoused for release in later years when the crop is short, the purpose being to keep the supply steady and the market firm.

Parity Prices: Prices which would give to farm crops the purchasing power they had from 1909 to 1914, a period, the experts say, when the farmers income represented a fair share of the national income from industry and other sources.

Compulsory control: Power placed in the Government or in the farm groups to compel individual farmers to grow or market smaller crops.

Voluntary Control: The right of individual farmers to refuse to go into acreage or marketing programs, with cash and other benefits given those who accept.

Commodity Loans: Money advanced to farmers by the Government on their crops, the purpose being to support prices and to finance farmers who hold their cotton off the market. Such cotton would pass on into the ever-normal granary.

Marketing Quotas: The total of any crop a farmer might sell without subjecting himself to the payment of a penalty.

Penalty Tax: The amount of tax levied against the farmer who sold more than the marketing quota allowed.

Processing Taxes: Levies placed on the process of changing cotton into cloth, wheat into flour, hogs into bacon.

Benefit Payments: Payments to farmers who comply with government farm programs. Under the old AAA these payments were borne by the processing taxes which in the case of cotton were around 4 cents per pound.

Wage-hour legislation once more has foundered on the rocks of southern opposition—the house having voted on December 17 to re-commit the bill to the committee, which is almost tantamount to killing it for the current session.

TWOC has been quiet during December. Reason: the serious illness of Sidney Hillman who was down with pneumonia. He went to Florida to recuperate for six weeks, and in his absence things are very quiet indeed as far as active organization work is concerned.

As long as there is progress in the textile industry we have hope that it will survive recessions, depressions, and good times. Clemson College in South Carolina has just opened bids on a half million dollar textile building; bigger and better donations are being received on the textile school to be installed at Jackson Training School in North Carolina.

And on the other hand, for the first time since Eli Whitney placed his cotton gin in operation, a new method has been invented for ginning cotton. We have held a long time that the next step forward in mechanizing cotton industry was in the gin for we need better cleaning processes in order to utilize to best advantage the machine cotton pickers.

Senator Bilbo still urges government laboratories for new uses research work in cotton; the Cotton Research Foundation financed by mid-south shippers and affiliated with the Mellon Institute is actively in the field to discover new uses for cotton; The Cotton-Textile Institute, Inc., is broadening its program to promote new uses of cotton by including the warehouses and compresses in its fund drive; and now the officials of the Department of Agriculture admit they are enthusiastic over a plan to advertise cotton goods. The plan is credited to Secretary Morgenthau and will be financed they say out of funds provided by Section 32 of the old Triple A.

Since cotton first became a money crop in this country it has been a stabilizer to the balance of trade. Half the nation depends in some way upon cotton for a living; the United States has been built into a great nation because of its cotton production and the loss of its world markets has done more to upset domestic economics than any other one element. The country could well afford to spend millions to advertise its most important product. It is actually a job far too big for any number of unco-ordinated advertisers. It is a job so mammoth that only the government should underwrite it. And so we urge an early adoption of Morgenthau's plan as the best answer to our cotton problem.

"BEST BELT WE'VE EVER HAD on our UNIVERSAL WINDER DRIVE!"

THAT'S how the superintendent of a large North Carolina Mill describes the performance of a Goodyear COMPASS No. 26317 Endless Belt on one of his Universal Winder No. 30 drives. Previous to 1936 five to six months was the longest service any type of belt had ever delivered on these drives and even in that short life frequent shutdowns were necessary to remove stretch and eliminate slip.

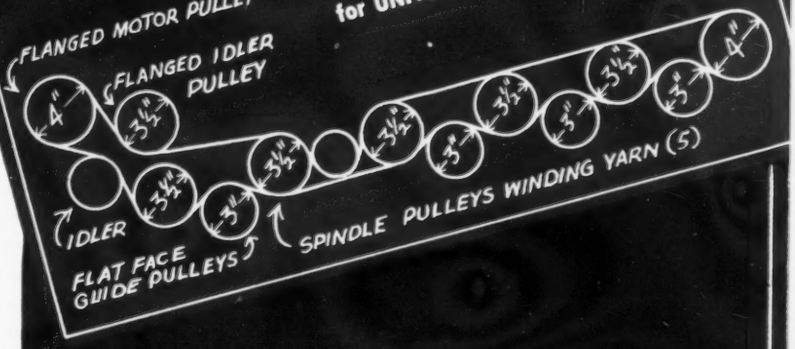
The mill put the problem up to the G.T.M.—Goodyear Technical Man—and on his specification a COMPASS Belt was fitted to one of the drives on August 5, 1936. For exactly one year and five days—more than twice as long as the best previous belt—the COMPASS gave perfect performance until it failed on August 10, 1937.

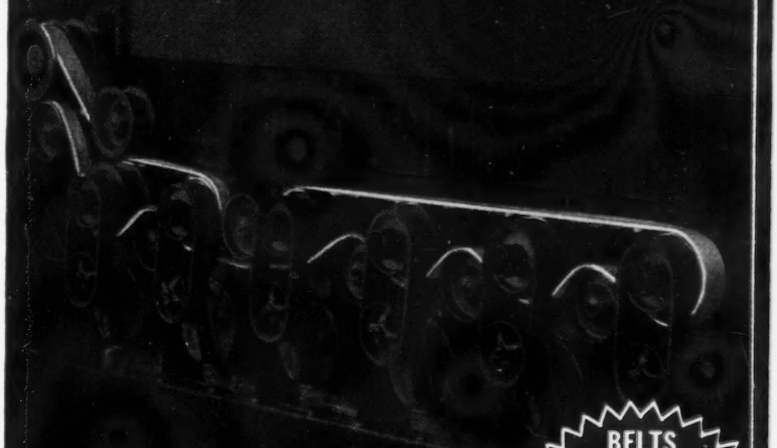
Not a single adjustment

How perfect that performance was you can judge from the fact that not one shutdown was necessary for belt repair or adjustment during COMPASS' entire service. Not only was all maintenance expense eliminated but production was increased because COMPASS held the speed steadily *without slip!* No wonder the superintendent is enthusiastic.

You will get this same superior service from the Goodyear COMPASS Belt on your most exacting drives because it is the most nearly stretchless belt built. Its patented rope-cord construction has exceptionally long flex-life on small-pulley, high-speed drives. Let the G.T.M. give you full particulars—write Goodyear, Akron, Ohio, or Los Angeles, California—or phone your Goodyear Mechanical Rubber Goods Distributor.

GM-Specified
GOODYEAR COMPASS No. 26317
ENDLESS BELT
130½" long x 1½" wide
for UNIVERSAL WINDER No. 30 DRIVE





BELTS
MOLDED GOODS
HOSE
PACKING
Made by the makers of Goodyear Tires

THE GREATEST NAME IN RUBBER
GOODYEAR

What the Southern Mills are Doing

CLEMSON (S. C.) COLLEGE is constructing a new textile building which will cost approximately $465,000 and which will probably be finished for the fall 1938 session. The building will be four stories, built in the shape of a block "U", and afford about 30,000 square feet of floor space. Daniel Construction Company, Anderson, S. C., is in charge of the work.

Sellers Manufacturing Company, Saxapahaw, N. C., has an extensive expansion program under way which will increase production by one-third. A modern building will be constructed 100x200 feet, affording about 60,000 square feet of floor space. The spinning and carding departments will be housed in the new structure.

Hermitage Cotton Mills, Camden, S. C., has completed installation of 100 modern looms. The company also has complete construction of a new mixing room, a new supply department, and a new cloth storage room.

Houston (Tex.) Cotton Mills have leased the Kingsville (Tex.) Cotton Mill, which will increase the production 40 per cent. Houston Cotton Mills manufacture twines.

Watts Mills, Laurens, S. C., have had the mill painted. Also, the community building and all of the homes of the employees have been painted.

Kendall Mills, Newberry, S. C., are having the spinning rolls equipped with the Guillet taper fitted roller neck by the Dixie Spindle & Flyer Co., Inc., Charlotte, N. C.

Burlington Mills, Inc., is transferring the weaving machinery from the plant at Reidsville, N. C., to six other plants in North Carolina and Virginia. The building at Reidsville was not suitable for looms.

Wennonah Cotton Mills, Lexington, N. C., has completed a program which has been in process for three years, including the revamping of old machinery and the installation of wide dobby looms to replace the former narrow looms.

Rosemary Manufacturing Company, Roanoke Rapids, N. C., plans to construct a three-story addition costing about $60,000.

Randolph Mills, Inc., Franklinville, N. C., is building an addition which will almost double the floor space of the inspection department in Plant No. 2.

Tubize Chatillon Corporation, Rome, Ga., has been assigned a patent for a method of producing hairy rayon yarn, the patent being granted to James E. Moore. The apparatus cuts exterior filaments of the yarn at intervals along its length.

Exposition Cotton Mills, Atlanta, Ga., have an improvement and repair program under way on the mill buildings. C. M. Guest & Sons, Anderson, S. C., are in charge of the work.

American Enka (N. C.) Corporation is spending some half a million dollars on improvements and replacements and additions. Dunhill Construction Company, Henderson, N. C., has been awarded the work.

Greenwood (S. C.) Cotton Mill has completed plans for a 3-story addition to the mill, which is expected to cost about $45,000.

Mathews Cotton Mill, Greenwood, S. C., has completed construction of 100 houses for the employees. A single-story addition to the plant is also being constructed.

Pendleton Manufacturing Company, LaFrance, S. C., has completed installation of water and sanitation facilities in all of the village homes.

Whitney (S. C.) Manufacturing Company has installed a vacuum lint and dust collector system.

Clark Thread Company has purchased a building in Toccoa, Ga., and installed machinery for spooling thread. Operatives are being trained for this work.

Superior Yarn Mills, Mount Holly, N. C., have installed hot waxing attachments on the winders. Gaston County Dyeing Machinery Company was in charge.

Rock Hill (S. C.) Printing & Finishing Company is constructing a new warehouse and an addition to the office.

Mylan Manufacturing Company, Sparta, Tenn., has leased the building formerly occupied by the Welwood Silk Mill. It is reported that shirts will be manufactured.

November Rayon Yarn Production Equaled 80 Per Cent of Capacity

Because of a temporary slackening of demand, production of rayon yarn was further curtailed in the United States during November, according to the *Rayon Organon*, published by the Textile Economics Bureau.

Operations in the industry last month were equal to about 85 per cent of capacity and further curtailment to around 65 per cent of capacity is expected during the current month, based upon trade advices. Individual rates of curtailment vary widely, according to the publication, ranging from a few per cent of capacity in the case of some companies to complete plant shutdown in the case of others.

Deliveries of rayon yarn again showed a drop during November. Shipments last month equaled 252 as measured by the *Organon's* index as compared with 366 for October and a 1936 monthly average of 669. Producers' stocks of yarn, as a result, again increased, amounting to 1.8 months' supply at the close of November compared with 1.1 months' supply at the end of October.

The current temporary curtailment in the industry, coupled with conditions now operating within the industry, may result in a new approach to rayon pricing policy, in the opinion of the *Organon*.

Without reviewing the well-known rapid growth of the rayon yarn industry in the United States, it is pointed out that at least three points stand out as having a bearing on future production:

First, the characteristic growth of new industries such as rayon; second, the very high proportion of total cost represented by fixed costs in the yarn producing division; third, the fact that over recent years, the industry has not made a "normal" profit on investment unless yarn was produced and sold at nearly 100 per cent of capacity.

These three factors, the paper adds, considered together with the future growth of the industry "and that ultimate time when a stabilized demand for rayon yarn will have been reached by the industry, suggest there may have to be a new approach to rayon yarn pricing policy over the next several years.

"Specifically, instead of pricing rayon yarn so low that a normal profit can only be obtained by operating at 100 per cent plant capacity (coupled with demand), it may be necessary for the rayon producer to price his yarn to carry costs and show a profit at say 70 per cent, 80 per cent, or some other percentage of his capacity."

There's a difference in Peaches

Only in a fabricated product do you get the essential *scientific control* which assures uniform high quality

NOT all peaches are good peaches. Uniformity is not an attribute of nature. Since uniformity is so important in roll coverings, the trend today is to the Armstrong Cork Cot. This fabricated roll covering is scientifically controlled through every exacting step of its manufacture.

How does this uniformity benefit you? Armstrong's Cork Cots insure better running work and stronger, more uniform yarn. They last longer. And after serving their normal life on the spinning roll, these cots can be made new again.

Because this fabricated material is uniform throughout its entire wall thickness and is not limited to a thin outer layer, it can be precision-ground or buffed to a true and concentric finish—an important factor in spinning quality yarn. Another advantage is the rebuffing feature—these cots may be made new again and again by this easy, inexpensive operation—your guarantee of roll covering economy.

You pay no premium for these savings. The initial cost of an Armstrong's Seamless Cork Cot is no higher than other types of roll covering material. In addition, lower assembly costs offer further economy. The proved performance of more than 6,000,000 active spindles running on cork today is the best recommendation we can offer.

Take advantage of the many savings made possible by Armstrong's Seamless Cork Cots . . . the fabricated roll covering that is always uniform. Let an Armstrong representative show you production figures of mills spinning your range of numbers on cork. Or write to Armstrong Cork Products Co., Textile Division, 923 Arch Street, Lancaster, Pa.

CORK PRODUCTS
SINCE 1860

ARMSTRONG'S *Extra Cushion* SEAMLESS CORK COTS

COMMENT on the Cotton Market

New Orleans, December 14, 1937

MUCH TO THE SURPRISE of the trade, the cotton market maintained a steady undertone following release of the government's annual December cotton crop estimate. Returns to Washington point to an indicated production of 18,746,000 bales of 500 pounds gross weight, an increase of 503,000 bales over the November crop forecast. Last year's crop was 12,399,000 bales.

The Crop Reporting Board estimates the acreage in cultivation July 1 at 34,383,000 acres versus its original estimate of 34,192,000. The abandonment is estimated at 1.3 per cent, and the acreage for harvest at 33.930,000 acres. The indicated yield per acre was given as 264.6 pounds, an unprecedented high, comparing with 197.6 last season and the ten-year average of only 169.9 pounds.

The Census Bureau reported 16,178,000 bales ginned to December 1 versus 11,493,000 ginned to corresponding date last season.

The predicted crop, yield per acre, ginnings and bale weights are all the largest on record.

Government loans on the 1937 cotton crop reported to the Commodity Credit Corporation up to December 9 were given as 3,478,022 bales. These totals are likely to be enlarged during the winter.

There is a proposal for the government to impound 6,000,000 bales, which, if adopted, would probably strengthen the position of cotton since there is apt to be a much smaller acreage in cotton in the United States next year, and, perhaps, strict crop control if the contemplated legislation is approved and put in motion in time to govern the making of the next crop.

As to foreign growths, recent cables are to effect that estimates have been reduced from early expectations of about 20,100,000 bales. Recently one private estimate was lowered to 19,550,000 bales. While this is not much of a reduction, it serves to about offset the November increase in the American production.

Despite the curtailment by American mills, Garside estimates world consumption of American for the first quarter of the season at 3,063,000 bales compared with 3,118,000 for the same period last season, and of foreign growths 4,224,000 against 4,142,000, making a total of all kinds for the first three months of the season of 7,287,000 bales versus 7,260,000.

Consumption of American is on the down grade, due largely to the slump in business, domestic mill curtailment and the war in the Orient. This is reflected in census returns covering consumption by American mills for the month of November.

Notwithstanding the falling off in exports to Japan and China, due to the war in the Far East, shipments from the United States are somewhat larger than they were at this time last year because of the larger buying of American by Europe, especially by England.

Japan undoubtedly has drawn heavily on its reserves, so much that the stock of American afloat for the Orient and at ports of the Orient on December 10 was only 157,000 bales versus 493,000 on corresponding date last season. At this rate, reserves of American in the Orient would not last long and may soon be nearly exhausted. However, enlarged buying of Indian may be looked for on the part of Japan, and a revival in purchasing of American by Japan is likely eventually since India will hardly meet their expected demand in full.

SEASON'S INDICATED WORLD'S SUPPLY OF AMERICAN LINT COTTON

Bales—	This season	Last season
World's carry-over, August 1 (Plauche)	5,740,000	6,732,000
Indicated crop, government estimate	18,746,000	12,399,000
Total indicated supply for season	24,486,000	19,131,000

CENSUS REPORT

United States— Bales—	This season	Last season
Consumption of lint, November	485,000	626,000
Consumption of lint, 4 months	2,217,000	2,482,000
Mill stocks, November 30	1,656,000	1,801,000
Stocks in public storage and warehouses Nov. 30	11,549,000	8,386,000
Stocks in mills, public storage and warehouses, Nov. 30	13,205,000	10,187,000
Active spindles during November	22,792,000	23,814,000
Active spindles during October	23,724,000	23,662,000
Consumption of lint in Cotton Growing States in November	418,000	527,000
In New England States	55,000	79,000
In All Other States	12,000	20,000
In the United States	485,000	626,000
Consumption of lint in Cotton Growing States 4 months	1,885,000	2,080,000
In New England States	273,000	324,000
In All Other States	59,000	78,000
In the United States	2,217,000	2,482,000

BRITISH BOARD OF TRADE REPORT FOR NOVEMBER

Year— 1937	1936	1935
Exports of cloth, yards 151,000,000	154,000,000	158,000,000
Exports of yarn, pounds 10,000,000	12,000,000	12,000,000

EXPORTS OF RAW COTTON FROM THE UNITED STATES

August 1 to December 10— Bales—	This season	Last season
To Great Britain	907,000	541,000
To the Continent	1,687,000	1,216,000
To the Orient	181,000	752,000
To Canada	125,000	119,000
Total	2,900,000	2,628,000

AMERICAN COTTON

August 1 to December 10— Bales—	This season	Last season
Brought into sight (marketed)	10,758,000	9,915,000
Exports from the U. S., incl. Canada	2,900,000	2,628,000
Spinners takings, world	5,293,000	6,011,000
Stock at all U. S. ports, December 10	3,242,000	2,958,000

WORLD'S VISIBLE SUPPLY OF COTTON

December 10— Bales—	This year	Last year
American	8,461,000	7,320,000
Other kinds	1,621,000	1,891,000
All kinds	10,082,000	9,211,000

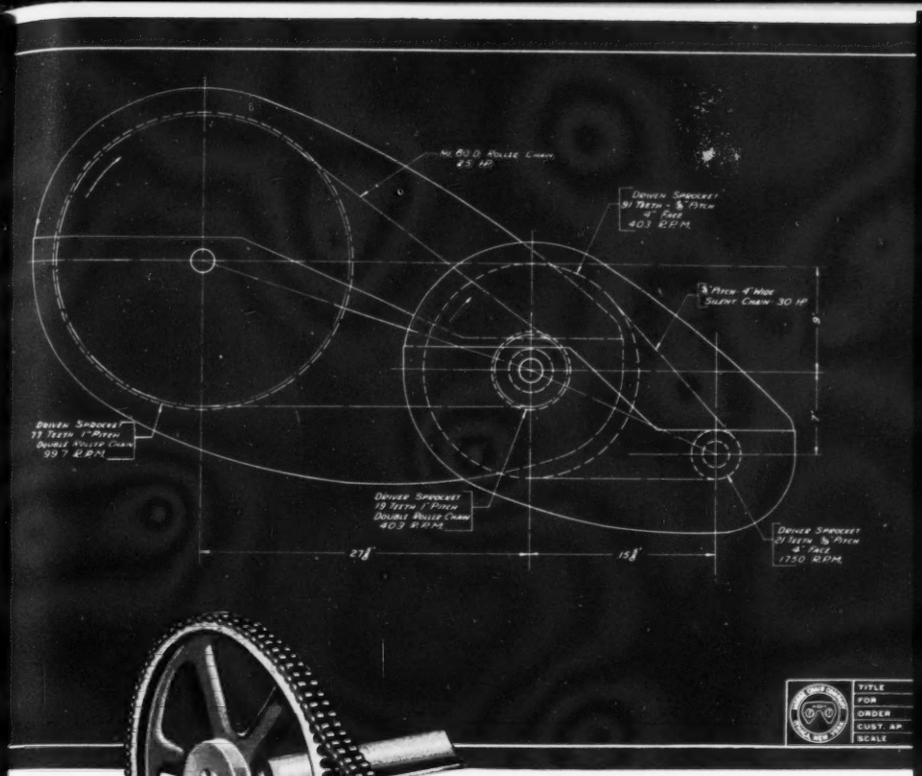
Haveg Bulletin

Haveg Corporation, Newark, Del., has made available Bulletin D-1 descriptive of the company's standard rectangular tanks and accessories. The bulletin gives design data for the tanks and specifications for ordering.

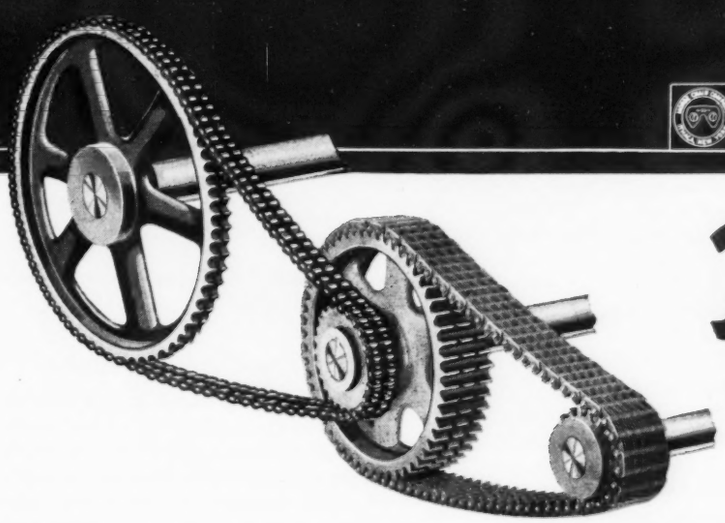
Tool Catalog

The Billings & Spencer Company, Hartford, Conn., have released the 40th edition of the company's catalog describing and illustrating their line of forged tools. The catalog is pocket size and features the new line of Vitalloy wrenches comprising a line of double end engineers' double hex box wrenches, textile, etc., tools.

Lola Mills, Inc., Stanley, N. C., have completed an extensive modernization program. Three yarn drying units were included in the new machinery installations.



This MORSE CHAIN INSTALLATION



Doubled Machine Capacity

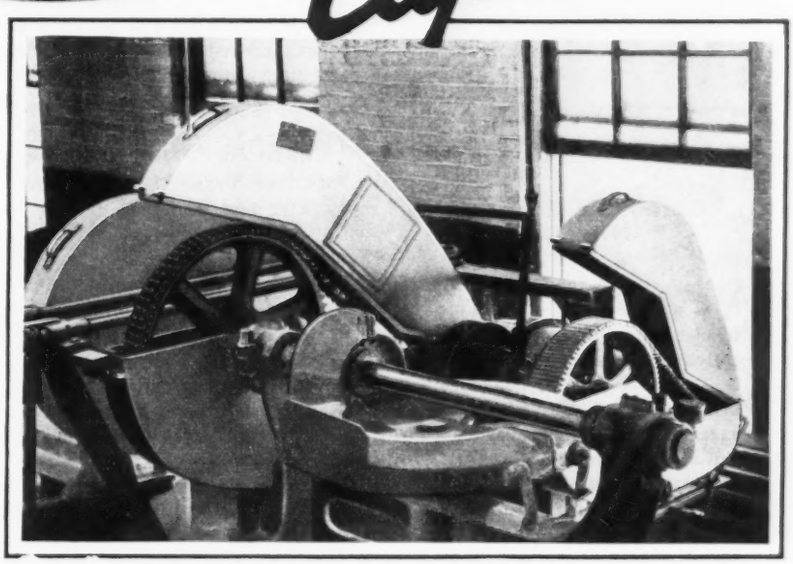
ACTUALLY, twice the production from this battery of paint mixers after Morse Chain Drives replaced belt drives! Above you see the blueprint of the installation, as especially engineered by Morse. Below the working drawings are the actual chains —a 30 h.p. Morse Silent, and a double Morse Roller Chain. At the right is a photograph showing one of a battery of mixers, every one Morse-driven.

This is only one instance in many in which Morse drives have greatly increased production and effected important savings in production costs.

Is there a power application in your plant where Morse Chain Drives 99.4%* efficiency and greater economy can serve you?

If you haven't yet received your 1938 Morse calendar, ask the Morse representative in your territory for one, or write direct to Morse, Ithaca.

*Recent tests have shown this greater efficiency of power transmission with Morse rocker joint Silent Chain.



This shows the Morse Silent Chain and Roller Chain drives installed on one of the paint mixers. Morse smooth, higher-speed operation doubled production obtained by former drives.

SILENT CHAINS ROLLER CHAINS FLEXIBLE COUPLINGS KELPO CLUTCHES

MORSE *positive* DRIVES

MORSE CHAIN COMPANY ITHACA N. Y. DIVISION BORG-WARNER CORP.

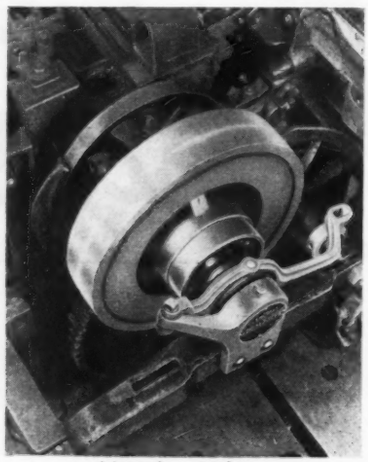
NEW TEXTILE EQUIPMENT—PUBLICATIONS

Explosion-Proof Squirrel-Cage Motors

The Reliance Electric & Engineering Company, 1088 Ivanhoe Road, Cleveland, O., has announced a line of explosion-proof squirrel-cage alternating-current motors with mounting dimensions conforming to N.E.M.A. standards. These motors have been tested and approved by the Underwriter's Laboratories for Class 1 Group D hazardous locations, which include those in which flammable volatile liquids, highly flammable gases, mixtures or other highly flammable substances are made, used, or stored in other than the original containers.

New Loom Drive

Dodge Manufacturing Corporation, Mishawaka, Ind., has developed a new loom drive. While there is nothing new about the principle, its application to textile looms is entirely new. It is an assembly of standard power transmission products that make up a clutch flywheel constructed and modified for use on the conventional belt driven loom. The flywheel provides an extra source of power which the loom can draw upon for its peak requirements, such as picking. The flywheel is directly driven from the lineshaft by means of a belt running at constant speed. When the clutch is disengaged the flywheel runs loose on the sleeve and the loom remains idle; when the clutch is engaged by the shipper lever, power is transmitted from the flywheel through the clutch and the loom starts instantly. If there is a bang-off the clutch releases, the flywheel runs loose on the sleeve, and the loom is quickly brought to a stop by the regular brake mechanism. All that is required for installation is that the old tight and loose pulley assembly and the old belt shipper fingers be removed, the loom drive slipped onto the shaft, and the driving gear bolted to the sleeve of the loom drive. The outboard bearing to which is attached one end of the shifting lever is then slipped on and lined up. Thus it is not necessary to remove or cut the belt or make any other alterations of the regular loom parts. The drive has porous capillary oiling bronze bearings and moulded asbestos friction material.



New loom drive

New Friez Microstat

Julien P. Friez & Sons, Inc., Baltimore, Md., have available a new microstat or small thermostat, at low cost, for control of heating or cooling equipment with an exceptionally small differential of control. The microstats are for use on low voltages (25 volts) yet are said to be able to carry an electrical load of 75 watts directly off their contact without recourse to relays.

Booklet by Houghton

E. F. Houghton & Company, 240 W. Somerset St., Philadelphia, Pa., have released a booklet descriptive of and illustrating the use of treated, high film strength lubricants, known as Houghton's Sta-Put series, and grouped and graded according to industrial machinery applications. The title of the booklet is *Less Oil—Less Often.*

Trane Air Conditioning Manual

The Trane Company, La Crosse, Wis., has published a loose leaf book of 325 pages entitled *Trane Air Conditioning Manual.* It is presented as an all-inclusive, useful, scholarly, and new contribution to a great and growing industry. The manual was written and compiled by William Goodman with the co-operation of the company's engineering and laboratory staffs. All available information on the science and practice of air conditioning was assembled and sifted, its inadequacies and shortcomings noted, and only the factual, tested data from it retained. It contains the sound principles of air conditioning as a science. Included is a psychrometric chart, which when used with a specially designed ruler, also included with the book, enables one to solve the most intricate air conditioning problems with startling rapidity. The keynote of the manual is simplicity; it makes difficult engineering understandable and available. Extensive tables are given both to present data in a simple fashion and to avoid the time-consuming use of mathematical formulas. For the student it is a practical approach to a sound knowledge of air conditioning; for the seasoned engineer it is an invaluable handbook encompassing the problems of applied air conditioning. It sells for five dollars, including the binder.

Stainless Steel Vats and Tanks

S. Blickman, Inc., Weehawken, N. J., fabricates vats, tubs, and containers in special sizes and special shapes, of stainless steel, which is able to withstand the corrosive action of the chemicals used. This material can also be formed to the desired shape and welded and finished free from all sharp corners. Welds are said to be made of equal strength to the parent material. Stainless steel is used to produce equipment that is said to be practically free from maintenance costs and that lasts indefinitely despite contact with any of the chemicals used in the bleaching, dyeing, and finishing industries.

. . . made of stainless steel

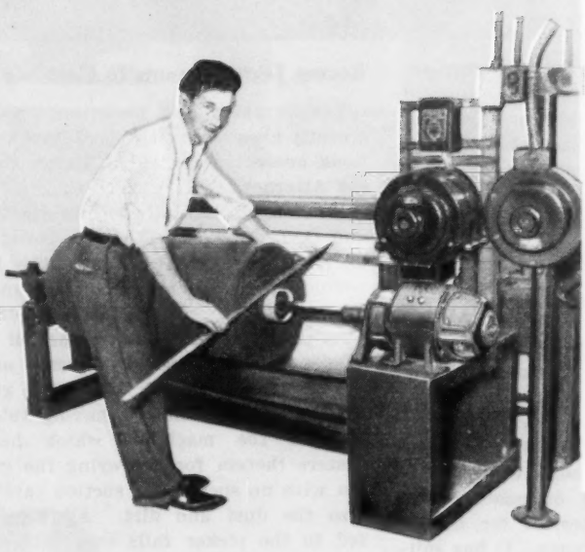
Thermometer Catalog

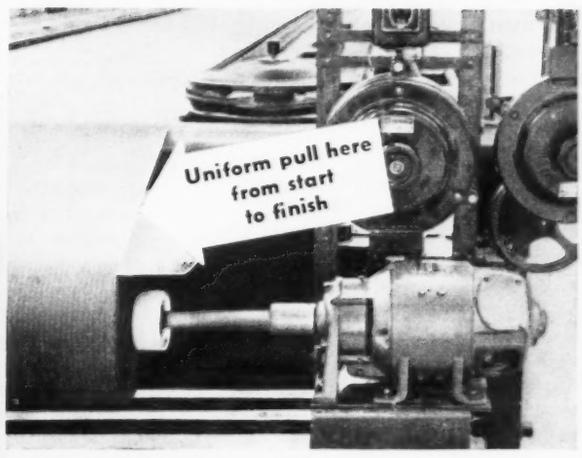
C. J. Tagliabue Manufacturing Company, Park and Nostrand Aves., Brooklyn, N. Y., has made available a new industrial thermometer catalog, No. 1125B, containing 24 pages of conveniently arranged listings of the complete TAG industrial thermometers. The pages are filled with pertinent information about the construction of these instruments with illustrations clearly showing the various forms and connections that fit every application.

Folder by Penn Salt Co.

Pennsylvania Salt Manufacturing Company, 1000 Widener Building, Philadelphia, Pa., has published a folder descriptive of Pennpaint, an especially prepared product with a chlorinated rubber base. It is said to be an ideal protective coating with a remarkable resistance to moisture, weather, and chemical attack.

This G-E Batcher Drive
MAINTAINS UNIFORM PULL
from Start to Finish

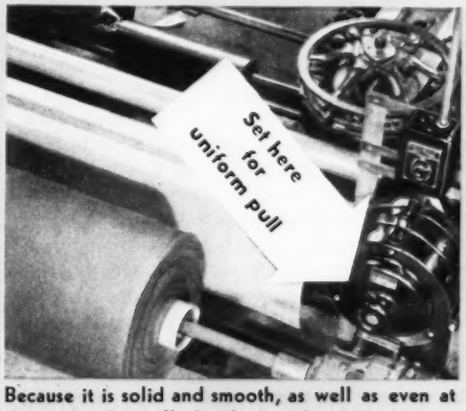




G-E batcher drive operating on Van Vlaanderen tenter.
Bradford Dyeing Associates, Bradford, R. I.

NO ordinary system of tension control produces the satisfactory results obtained through the use of G-E batcher drives. Developed especially for the purpose, the motors and control will maintain uniform winding tension for *any* type of cloth and at *any* tenter speed.

The required tension is set beforehand—simply and easily—by rheostat dial. Electric push buttons, starters, and the motors themselves take care of the rest of the operation, holding uniformly the exact tension set for the cloth that is being batched. No more intermittent juggling of friction devices. No more loopy, uneven rolls. The General Electric batcher drive eliminates these troubles, requiring only deft but simple adjustment for the varying cloths to be batched. Note the new pictures above and at the left—proof of the excellent results attributable to the G-E drives. These batcher drives have all been applied to tenters originally equipped with friction devices. General Electric, Schenectady, N.Y.



Because it is solid and smooth, as well as even at the ends, this roll, batched with electric drive, is in better condition for subsequent processing

GENERAL ELECTRIC

011-316

Rayon Bobbin Stripper

The Terrell Machine Company, Charlotte, N. C., announce that their new Model L rayon bobbin stripper includes the two principles of the use of compressed air for starting the yarn ends from the bobbins, and a pair of brush-covered rolls to complete the unwinding. The air is supplied from a compressor or may be taken from any source of air supply which will provide enough pressure and volume. The average recommended pressure is from 10 to 20 pounds.

A pair of air tubes run beneath the feed rails on each side of the bobbin and downwardly directed jets blow the ends into engagement with the unwinding reels which rotate inwardly at the top in the opposite direction. The bobbin feeding mechanism consists of two belts which are pressed together against the bobbin heads and which move them through the machine without damage and without contact with metal except where heads are supported on the guide rails. They are maintained in vertical alignment by means of a bar underneath which the heads pass and which prevents tilting. The speed of the machine will depend, to some extent, upon the skill of the operator, but the manufacturers state that a speed of 90 to 100 bobbins a minute can easily be maintained under average conditions.

The rolls are cleaned by cutting the wound rayon from them after they have been filled.

Other feeding means are being developed for types of bobbins which can not be fed with the friction belts, it is announced.

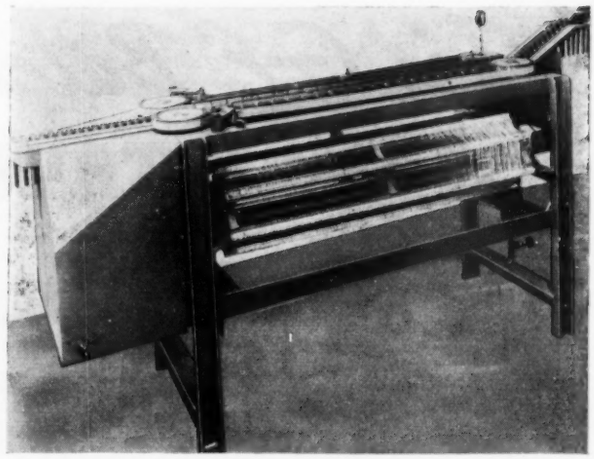
Index for Current Publications on Nickel Alloys, etc.

The International Nickel Company, Inc., 67 Wall St., New York City, has released an index of current publications pertaining to nickel alloy steels, nickel cast irons, nickel brasses and bronzes, and other nickel alloys, which should be of interest to mill men, engineers, metallurgists, and purchasing agents. Each publication listed in the index is briefly described, and available upon request.

Engineering Research Service

Recognizing the vital need of research as an aid in developing the human and natural resources of the South, the State of Georgia has established an engineering research agency known as the State Engineering Experiment Station, a part of the university system and located at the Georgia School of Technology, Atlanta. The Station consists of a group of scientists trained in the major branches of engineering who have at their disposal a variety of special research equipment and facilities. A booklet entitled "*Supremacy Through Research* has been made available describing and illustrating some of the various branches of the research program, such as textiles, turpentine, ceramics, concrete, etc.

At right, the new Model L rayon bobbin stripper announced by Terrell Machine Company . . . .



New Du Pont Dyestuffs

E. I. Du Pont de Nemours & Company, Inc., Dyestuffs Division, Wilmington, Del., have announced four new dyestuffs. Pontamine Fast Brown SKRL is a bright, reddish brown, designed for hosiery dyeing as well as for use as a union color. Lithosol Red 2B Powder, announced as a calcium lake or toner, is for use in printing ink and lacquers. It has suitable fastness to acid, alkali, lacquer solvents, and light. Two new Ponsol vat colors, Dark Brown R Paste and Brilliant Red B Paste (Patent applied for) have been added. The former is used chiefly as a base for dark brown shades on dress goods, shirtings, etc., and the latter is expected to be used in providing fast colors on cotton, rayon, and linen.

Amercoat Bulletin

American Concrete & Steel Pipe Company, P. O. Box 1428, Arcade Station, Los Angeles, Cal., has issued an 8-page bulletin on Amercoat, a corrosion-proof, sprayable, plastic coating for concrete, steel, and wood. It is not a paint, and it is not a single solution or substance that is designed to meet any and all conditions. It is a surface protection that may be made up of two, three, four, or more separate coatings, applied one over the other, to form a corrosion-resistant body which cannot be peeled or chipped off. It is said to be sufficiently hard to withstand a considerable amount of abrasion or erosion, yet remains plastic enough not to check, crack, or fracture when subjected to vibration or pounding.

Recent Textile Patents to Carolinians

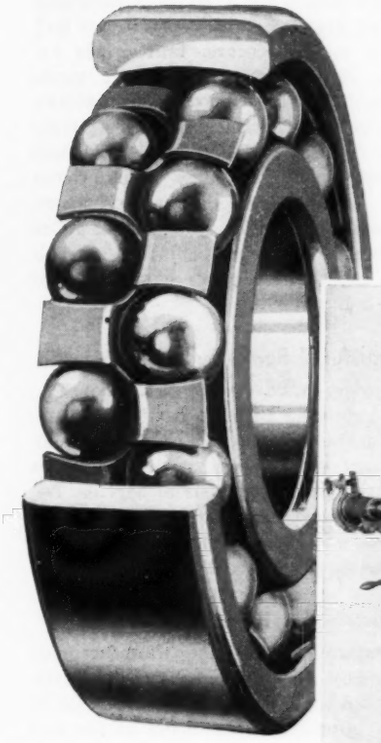
Textile patents of importance were recently granted to citizens of the Carolinas, according to Paul B. Eaton, Patent Attorney, Charlotte, N. C.

William H. Suttenfield of Statesville and O. L. York and V. B. A. Howard of Long Island, N. C., were the inventors in a patent which is assigned to Superior Yarn Mills, Statesville. This patent covers the combination of a bale breaker, a vertical opener and a picker for cleaning cotton. The gist of the invention lies in having tubes between the machines which have beaters therein for conveying the cotton with no suction, as suction carries also the dust and dirt. All surplus fed to the picker falls over into the bale breaker and is again fed through the apparatus.

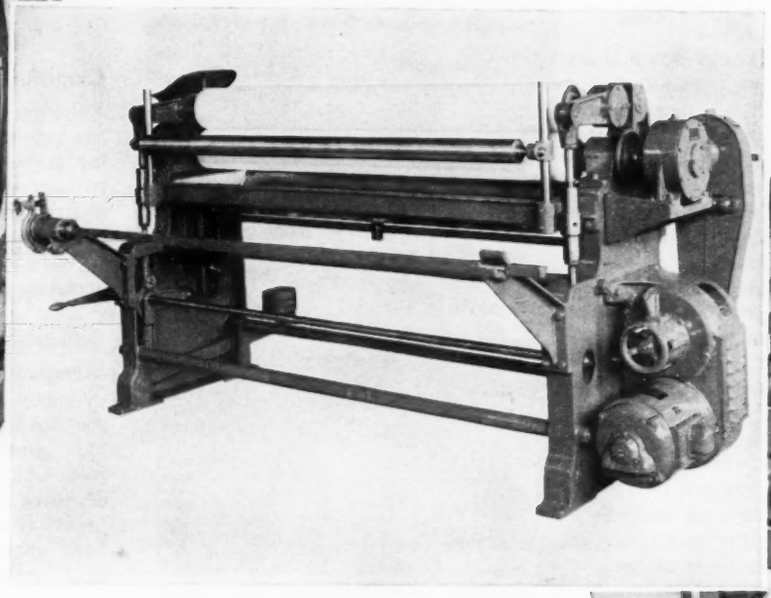
A. G. Hackney of Spartanburg and E. P. Floyd of Tucapau were awarded a patent on harness control means for looms, which comprises a pair of pattern drums located beneath the warp for controlling the harness of the loom. Pattern chains control the movement of the drums to advance, reverse and oscillate the drums to obtain varied pattern effects in the cloth being woven.

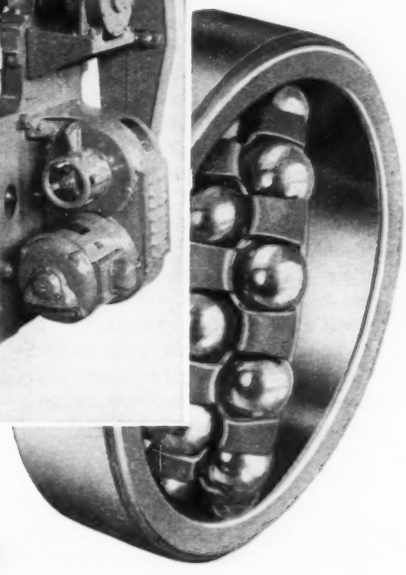
Steam Pump Bulletin

Fairbanks, Morse & Company, 900 S. Wabash, Chicago, Ill., have published Bulletin No. 6285 pertaining to a new duplex steam pump with 8-cover side-pot type fluid end and improved piston valve steam end. It is said to offer an economical means of handling oil, water or other free-flowing liquids at high pressures and in large quantities. Known as the Figure 6285, it was developed particularly for industrial and oil field boiler feed service, but is well suited to many general industrial, railroad, and municipal applications. Sizes are available for capacities up to 148 gallons per minute and fluid-end pressures up to 1000 pounds per square inch.



BUILT BY GENERAL MACHINE CO. SKF-EQUIPPED





OUT GOES FRICTION

WHEN SKF BEARINGS GO ON QUETSCHS

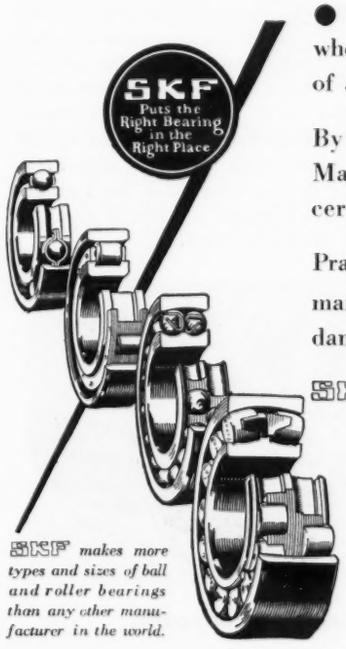
● There's no argument against friction in brake linings and emery wheels. Its virtue can be appreciated when it's applied to the head of a match. But there's no place for it on this Two-Roll Quetsch.

By equipping this machine with SKF Ball Bearings, the General Machine Company reduced friction to a vanishing point . . . made certain of long life and dependability of rotating parts.

Practically frictionless, SKF's keep their initial close tolerances permanently . . . are protected against lubricant leakage, fire hazards, and damage to stock. If *you* have a place for a bearing, give it to SKF.

SKF INDUSTRIES, INC., PHILADELPHIA, PENNA.

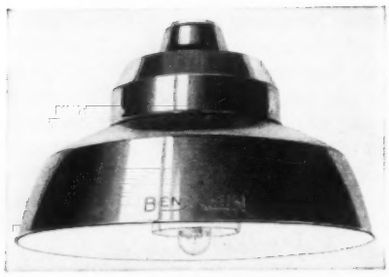
4016



SKF makes more types and sizes of ball and roller bearings than any other manufacturer in the world.

SKF

BALL & ROLLER BEARINGS



Combination Mercury and Incandescent Lamp Dome Units

Benjamin Electric Manufacturing Company, Des Plaines, Ill., has developed a dome combination unit that utilizes an arrangement of three 150-200 watt lamps around a central mercury lamp of 400 watts to produce a light which is both visually comfortable and which possesses the property of blending well with daylight. The 120 degree spacing of the three incandescent lamps around the central mercury lamp assures well blended light in all directions so that overlapping illumination in general lighting systems will maintain a more uniform color over the entire area. In the event of momentary current failure, the incandescent lamps supply stand-by illumination during the short interval necessary for the mercury to cool and automatically restart.

Bijur Folder

Bijur Lubricating Corporation, Long Island City, N. Y., has published a folder descriptive of the company's system for automatically oiling bearings. There is said to be no time out for oiling, no lag in lubrication, no bearing ever without oil, no drip, and no drainage, by this system.

Brochure on Motors

Century Electric Company, 1806 Pine St., St. Louis, Mo., has made available a 24-page brochure giving some of the points that we may have forgotten about motors. Included in the publication are data on how to select the proper motor for the job, brush lifting and brush riding motors, split phase motors, polyphase motors, etc. It is well illustrated.

"How To Handle Grievances"

Elliott Service Company, 219 East 44th St., New York City, has published a book entitled *How To Handle Grievances*, being 52 pages of case study and advice on labor problems. This book is published in two bindings, one with stiff covers and the other flexible, pocket size of 5½ by 7¾ inches. Quantities of from one to 10 are priced at 60 cents each, 101 to 250 at 45 cents each, with scaled prices for larger orders.

A. S. T. M. Standards for Electrical Insulating Materials

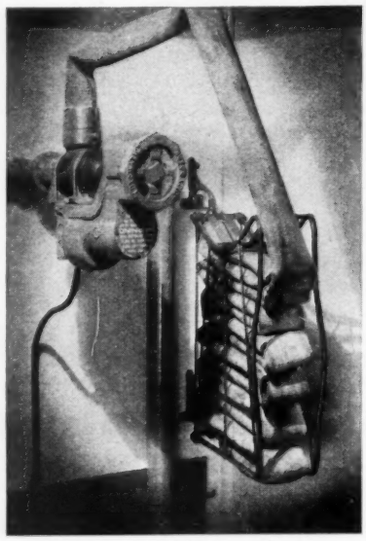
American Society for Testing Materials, 260 S. Broad St., Philadelphia, Pa., has published its compilation of standards on electrical insulating materials, including, in addition to the current report of Committee D-9, standards on insulating varnishes, paints, lacquers, etc. Copies of the 373-page book can be obtained at two dollars per copy in heavy paper cover, with special prices on orders for 10 or more copies.

Acme Folder

Acme Steel Company, 2847 Archer Ave., Chicago, Ill., has published literature pertaining to the problem of shipping or receiving pool, stop-over, or mixed cars, and a more economical method of bracing car doors.

Remote Control Hose Valve

Rockwood Sprinkler Company, 38 Harlow St., Worcester, Mass., has developed a remote control hose valve which is said to protect against freeze-ups and against loss of water from leaky underground fire protection piping. There is no water in the exposed section of the piping, the control valve being located where it is warm. The controls are of two types, either a break-glass station or the valve wheel. Where there is danger of freezing, the use of this valve eliminates the necessity for insulating the piping. Tests conducted indicate that water was available at the roof of a 23-story building within 11 seconds.



Remote control hose valve . . .

Davison's Knit Goods Trade

Davison Publishing Company, 50 Union Square, New York City, has published its annual *Davison's Knit Goods Trade*, being the 47th edition. Thumb indexes for instant reference to any section are in the directory. Included are all knitting yarn spinners, all knit goods manufacturers, knit goods agents, New York offices, knit goods wholesalers, knit goods chain stores, knit goods department stores, knitting yarn dealers, and hundreds of dealers in machinery, supplies, yarns, rayon and silk, waste, throwsters, dyers, maps, and statistics. The deluxe office edition of 800 pages sells for six dollars and the thin paper handy size for five dollars.

Centrifugal Pump Bulletin

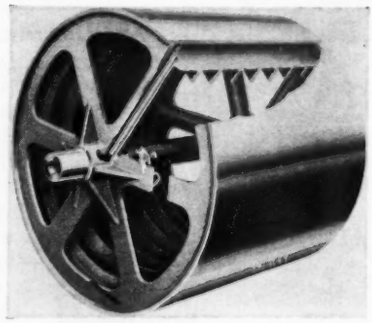
Dayton-Dowd Company, Quincy, Ill., has published Bulletin No. 805 pertaining to the company's close coupled centrifugal pumps for specific purposes and for general industrial service. Details of construction, dimensions, rating tables, and information for figuring a pumping problem are given.

Industrial Spotlight

Benjamin Electric Manufacturing Company, Des Plaines, Ill., has developed an industrial spotlight capable of high intensity illumination at the tool point of machines or over small areas of work benches. Light values approximating 1000 foot-candles can be built up over restricted areas of vertical or horizontal surfaces, due to the angular adjustment feature which is an integral part of the design. Where color correction is desired a daylight glass cover is employed, giving a color temperature of 4200 degrees Kelvin. The spotlight is available in various adjustable focus types.

New Type Steel Dryer

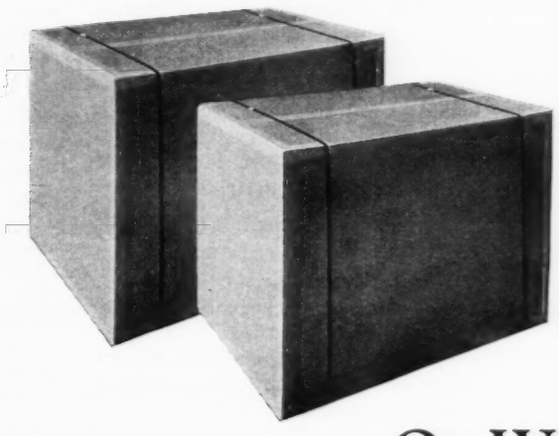
Lukenweld, Inc., a division of Lukens Steel Company, Coatesville, Pa., has developed a new steel dryer for use in the textile, chemical, and other industries. It operates with steam or other heating media, and is capable of providing controlled steam distribution at pressures up to 150 pounds. It can be manufactured in all sizes up to 15 feet in diameter, with shell face size limited only by transportation restrictions. It is made either in single shell or double shell construction.



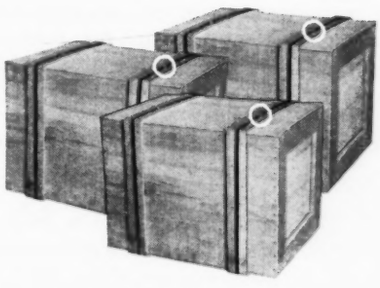
Steel dryer for textiles . . .

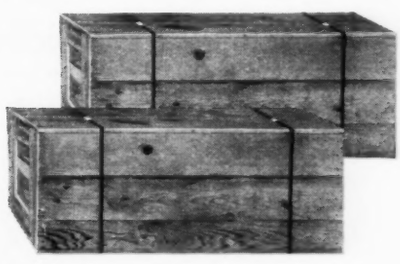
IF You BALE—

Or Ship in CARTONS



Or WOOD CASES





COSTS CAN BE REDUCED AND PROFITS INCREASED BY USING ACME BALE TIES and ACME STEELSTRAP

● Throughout the entire textile industry Acme Bale Ties and Steelstrap have, for many years, been used for reinforcing and protecting shipments.

Experience has dictated the exclusive use of clean, smooth, dependable Acme Bale Ties by hundreds of millmen.

Records of lowered shipping and handling costs—increased customer satisfaction—reduction of damage and pilferage are common to Acme Steelstrap users throughout the industry.

"My Second Strap-Book" contains many valuable suggestions. Mail the coupon for your free copy today.

ACME STEEL COMPANY

Atlanta, Ga.: 603 Stewart Avenue, S. W.

New York, N. Y.: 103 Park Avenue

Chicago, Ill.: 2847 Archer Avenue

Boston, Mass.--146 Summer Street

ACME STEEL COMPANY
2847 Archer Avenue, Chicago, Ill.

☐ Please send me a copy of "My Second Strap-Book."
☐ Without any obligation, please have Doc. Steelstrap diagnose our case.

Name _____

Position _____

Firm _____

Address _____

Vertical Motors

Fairbanks, Morse & Company, 900 S. Wabash Ave., Chicago, Ill., have published Bulletin No. 1410 descriptive of the vertical hollow and solid shaft polyphase, ball-bearing, squirrel-cage, induction motors, developed primarily for direct-connection to vertical-shaft turbine, propeller, and centrifugal type pumps, but have found wide application on special machine tools and various other industrial equipment. The exterior design of the motor and its ventilating openings make the machine weather proof so that it can be operated in the open all year around without injury. Adequate ventilation is provided by sturdy fans at both ends of the rotor.

Flow Meter Bulletin

The Foxboro Company, Foxboro, Mass., has made available a bulletin on flow meters for 1500 pounds working pressure, which describes special flow meters for high pressure measurement. A sectional view of Type 7000 meter shows the forged steel chambers, recessed and serrated gasket surfaces, bearing lubricator, pressure-tight bearing, etc.

New Belt Dressing

The National Oil Products Company, Harrison, N. J., has placed on the market a new belt dressing, Nopco 1919, which is said to increase the life of belts through increased flexibility imparted. This new dressing is made of oils that not only nourish the belt leather but that preserves and keeps it from drying up, with attendant brittleness and consequent loss of belt efficiency, according to the company. The dressing is said not to contain rosin, asphalt, or similar belt gripping compounds.

Fire Protection Movie

Rockwood Sprinkler Company, 38 Harlow St., Worcester, Mass., has published a folder describing a motion picture *Modern Magic in Fire Protection*, said to be 29 minutes of spectacular action scenes showing new and automatic apparatus for controlling effectively old fire hazards. Showing of picture may be arranged by writing to the company.

Flowmatic Regulator

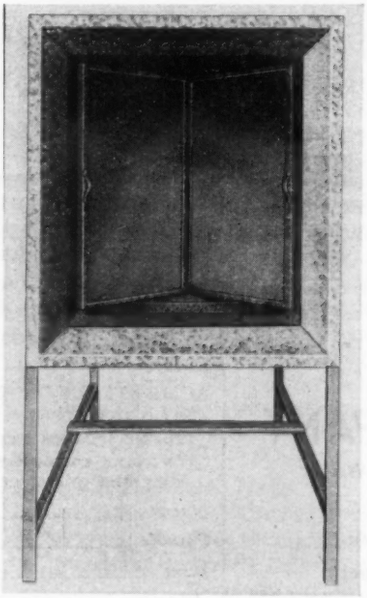
Northern Equipment Company, Erie, Pa., has released Bulletin No. 409-A on the Copes Flowmatic regulator, a two-element steam-flow type automatic boiler feed water regulator. It is said to provide a closer stabilization of the boiler water level under all load conditions. A chart showing the method of operation is included in the bulletin.

Fiber Laggings for Mounting on Drive Pulleys and Flywheels

Rockwood Manufacturing Company, 1801-2001 English Ave., Indianapolis, Ind., has a new fiber lagging with improved clamp that is used to increase the diameter of pulleys and fly wheels. Increasing the diameter of the driven pulley permits increasing the size of the motor pulley and results in higher belt speed. It is then not necessary to operate the belt so tight, which condition increases the belt life and reduces belt maintenance, according to the company. The fiber laggings are made of the same material as Rockwood paper pulleys. The compressed end grain fiber belt surface provides a pulling surface that grips and pulls the belt without slip. The laggings are supplied in any width and up to 72 inches in diameter, and are applied by clamping on the wheel rim with a perfected clamp of great simplicity. They may also be used in place of pulley coverings where operators need more transmitting capacity, provided the three to four inch increased diameter of pulley is not objectionable.

New Spray Booth

The DeVilbiss Company, Toledo, O., has announced a new improved spray booth for use with flock, designed especially to meet the peculiar requirements encountered in the application of flock. Ranging in size from 3 to 10 feet frontal width, the booths are of the direct exhaust type. They permit the concentration of flock-spraying operations in one location, reclaiming sprayed material not applied to the articles coated, and preventing this light material from scattering throughout the finishing room. The booths are equipped with a metal curtain top and sides. All booths are provided with the required number of sprinkler openings. The three, four, five, and six-foot booths are leg type, strongly welded.



Booth for spraying flock . . .

"Sealed"

New Departure, Division General Motors Corporation, 230 N. Michigan Ave., Chicago, Ill., has made available a 16-page booklet entitled *Sealed*, illustrating the value of the sealed bearings. Included are pictures of the application of the various bearings in industry.

Porcelain Catalog

John A. Eberly, Reading, Pa., has released Catalog No. 37 pertaining to the porcelain department of the business. The parts are grouped according to their use in various branches of the industry, and are illustrated, being numbered for easy reference.

Steam Hook-ups

Sarco Company, Inc., 183 Madison Ave., New York City, has made available a 29-page booklet pertaining to steam hook-ups; the booklet is said to be an innovation in the steam trapping field. It is based on an accumulation of data over a period of 25 years. The principal sections contain information on methods for calculating trap sizes, hook-ups and descriptions of various types of heating systems, including unit heaters and air conditioning, hook-ups for process steam applications, hook-ups for steam headers, and basic descriptions of the fundamental characteristics of the various types of steam traps, temperature regulators, and steam accessories required.

New Instrument

Julien P. Friez & Sons, Inc., Baltimore, Md., have announced a new and improved automatic window condensation control instrument. Condensation on windows during winter is said to be completely eliminated by using the Windowstat. It operates fully automatically. Bulletin W explains the application of the instrument.

Motor Mount Pumps

The Deming Company, Salem, O., has published an attractive 8-page bulletin No. 4300 on the company's motor mount pumps, which shows cross section views, installations, and gives specifications. The pumps are simple in design, of compact construction, and are said to operate with high efficiency. Wide selectivity for size and capacity is provided by 63 units comprising a range of capacities from 5 to 650 gallons per minute.

★"WHY I'VE STUCK TO GILLEATHER

"I'VE INVESTIGATED ALL SUBSTITUTES AND NOT ONE OF THEM CAN TRUTHFULLY ANSWER 'YES' TO ALL OF THESE 12 QUESTIONS

THE 12 POINT TEST

1. Does it automatically stop spinning when it makes bad yarn?
2. Does it retain its cushion and resiliency in low temperatures, as over the week-end in winter, and as long as it will draft?
3. Does it resist flattening or fluting over the week-end?
4. Will it hold its bond without grinding down the arbors?
5. Is it impervious to excessive humidity?
6. Does it produce a minimum of eyebrows?
7. Does it eliminate lap-ups as long as it will make good yarn?
8. Does it eliminate cockled yarn, other factors being correct?
9. Does it produce yarn of maximum strength for a given staple, other factors being correct?
10. Does it require a minimum of attention?
11. Does it function properly ALL the time until worn out?
12. Has time proved it any better than the 600 odd "improved" roller coverings that have come and gone?

"Take question No. 1. When leather is too worn to make good yarn, it roughs up, laps up the roving and breaks down the end, an automatic signal to the operative that the covering must be replaced.

"On the other hand all substitutes that I know can be seriously defective and still make bad yarn to the tune of thousands of pounds. For that reason alone I'm off them."

Time has shown that leather can pass all 12 tests. Of course it must be good leather,—like GILLEATHER, made by 4 generations of Gills, specializing in roller leather exclusively. This company cannot substitute the wrong kind of leather by mistake or otherwise, because it buys only one type of skin, specially selected for its suitability and carefully tanned by methods most conducive to quality and long life.

GILLEATHER spins good yarn as long as it lasts. Let us tell you ALL the reasons why.

*This is not a verbatim quotation, but a summary of what many operating executives have said to us.

SHEEP and CALF SKIN
GILLEATHER for TOP ROLLS

SALEM, MASSACHUSETTS

News Items with a Textile Slant

Murphy Gregg Joins U S Bobbin & Shuttle Company

J. Murphy Gregg has joined the southern sales force of U S Bobbin & Shuttle Company, of Providence, R. I., with headquarters in Charlotte, N. C. Mr. Gregg is well known in southern

Mr. Gregg

textile circles. He was at one time secretary to F. Gordon Cobb, then general manager of the Lancaster plant of Springs Cotton Mills, and later was secretary to K. S. Tanner, of the Stonecutter Mills, Spindale, N. C. Later he served for three years as secretary of the Southern Textile Association, subsequently calling on southern mills in a sales capacity with a group of well-known companies.

In his new connection, Mr. Gregg will contact southern mils in the vicinity of Charlotte, in connection with the bobbins, shuttles, spools and a number of new products of the U S organization. Other U S representatives in the South include: E. Rowell Holt, 1008 Johnston Building, Charlotte, N. C.; M. Ousley, Box 816, Greenville, S. C.; Charles Sidney Jordan, and L. K. Jordan, Monticello, Ga. Southern plants of the company are located in Monticello, Ga., Johnson City, Tenn., and Greenville, S. C.

Robie Divisional Sales Manager of Fairbanks, Morse & Co.

T. M. Robie, who has been associated with Fairbanks, Morse & Company, Chicago, Ill., since 1919, has been appointed manager of the Diesel sales division of the company. He is a graduate of the University of Michigan, where he specialized in a study of internal combustion engines.

Santee Mills Entertain Ladies

Santee Mills, Orangeburg, S. C., held its annual "Ladies Night" on November 27. More than 150 officials, employees and guests attended the affair, held in the high school gymnasium. Among the guests were Mayor James M. Brailsford, Arthur C. Walker, and Harold H. Wannamaker. Hugo S. Sims, local attorney, was the main speaker of the evening. William J. Wannamaker was in charge of the entertainment committee, which did a good job of providing fun for the crowd. Songs, dances, and magic were enjoyed by all present.

Dunbar Assistant to GE Advertising Manager

J. W. Dunbar, formerly in charge of magazine advertising for the Incandescent Lamp Department of the General Electric Company, Nela Park,

Mr. Dunbar

Cleveland, O., has been appointed assistant to C. H. Lang, advertising manager of the General Electric Company. Mr. Dunbar's headquarters will be at 570 Lexington Ave., New York City, where he will devote his principal attention to the selection of media.

MacMahon General Sales Manager for Graton & Knight

J. E. MacMahon, formerly assistant sales manager of the Graton & Knight Company, Worcester, Mass., has been appointed general sales manager, succeeding C. O. Drayton, resigned. Mr. MacMahon has had many years' experience with the company, including work in the factory, engineering department, and as salesman in a southern territory. In recent years he has been an executive in the sales promotion and advertising departments, as well as in the sales department.

Du Pont Products Earn Place in Exposition of Chemicals

"Aridex" water repellent was one of the 14 products of the E. I. du Pont de Nemours & Company, Inc., selected by the American Chemical Society for its exhibit of about 100 new developments at the 16th Exposition of Chemical Industries, held at Grand Central Palace, New York City, December 6-11. This product can be applied to fabrics to render them water resistant, and spot and stain resistant. "Cordura" rayon yarn was also included in the exhibit.

Haas-Miller Acquires Charles J. Haas, Inc.

The Haas-Miller Corporation, 4th and Bristol Streets, Philadelphia, Pa., on January 1 took over the entire business of Charles J. Haas, Inc. The surviving company has made great strides during the past two years. R. K. Gurney is the New England sales manager.

Hough Sales Manager for Murphy Diesel Company

George P. Hough has been appointed sales manager of the Murphy Diesel Company, Ltd., Milwaukee, Wis. He is a graduate of the University of Minnesota. For the last few years he has been connected with the construction industry in the manufacture of heavy equipment.

Hoefman Manager of Atlanta Office of Link-Belt

A number of changes have been made in the organization of the Link-Belt Company, Chicago, Ill. Harold

Mr. Hoefman

L. Hoefman has been appointed manager of the company's plant, warehouse, and sales office in Atlanta, Ga., succeeding I. H. Barbee, who passed away in Philadelphia November 4. George A. Paige is now manager of the company's warehouse and sales office in Detroit. Laurance O. Millard is district sales manager at Pittsburgh. Paul V. Wheeler is district sales manager at Cleveland.

Donates Building Site for Pumping Station

National Oil Products Company, Cedartown, Ga., has donated a building site for a pumping station to service the proposed new trunk line sewer system of the municipal sewage disposal plant in Cedartown. The station will be on the property of the plant near the city limits; the sewer line will be two miles long.

Obituary

JAMES O. MCKINSEY, 47, chairman of the board of directors and chief executive officer of Marshall Field & Company, succumbed suddenly on November 30, following a severe case of pneumonia in Chicago. Mr. McKinsey joined Marshall Field in 1935, being at that time the first outsider ever to become a senior executive of the company. He brought to Marshall Field a full experience in modern business methods, and instituted a number of striking changes in the organization. The first was the elimination of the company's extensive wholesale division, and others included a drastic reorganization of the retail, sales and manufacturing divisions.

GEORGE M. MEYER, 62, purchasing agent of the Grinnell Company, Charlotte, N. C., plant, passed away November 30 in Charlotte.

PAUL F. HADDOCK, southern sales manager for the American Cyanamid & Chemical Company, Charlotte, N. C., and one of the best known figures in southern textile processing, passed away at his home in Charlotte on December 5.

EDWARD C. ALLEN, 67, vice-president and general manager of the Special Fabrics Company of the Sayles Bleachery, Saylesville, R. I., passed away in Providence, R. I

W. SOLLY GRIFFEN, treasurer of the Parker Hosiery Mill & Dye Works, passed away in Portsmouth, Va., recently.

ROBERT D. TACKABERRY, who for many years was master mechanic at the Lewiston (Me.) Bleachery & Dye Works, passed away recently.

JOHN W. PEAD, formerly agent of the Merrimack Manufacturing Company, Lowell, Mass., passed away in Wilton, N. H., at the age of 84.

ALANSON RITTENHOUSE BREWER, 48, vice-president of the Dodge-Davis Manufacturing Company, Bristol, N. H., passed away recently.

JOHN F. SEIFERT, for many years superintendent of the W. H. Pendergast & Belfort Mills, passed away recently at the age of 75.

S. HAROLD GREENE, 57, president of Lockwood Greene Managers, Inc., and formerly treasurer of the Lawton Mills Corporation, Plainfield, Conn., passed away recently.

RICHARD W. ENSIGN, sales agent for Foster Machine Co., of Westfield, Mass., died on December 16 as a result of injuries sustained in an automobile accident near Washington, N. C., on that date. Mrs. Ensign was severely injured in the accident, but is recovering.

BROADUS E. WILLINGHAM, 74, at one time head of the Willingham Cotton Mills, Macon, Ga., passed away during November.

LEWIS W. THOMASON, 63, southern district sales manager of N. Y. & N. J. Lubricant Co., passed away at a hospital in Baltimore on Thursday, December 30, five days after the passing of his mother in Spartanburg on December 19. He had been in ill health for some time. Mr. Thomason, who had represented his company for 25 years, with headquarters in Charlotte, was one of the most popular and beloved sales representatives in the southern textile industry. He is survived by Mrs. Thomason, one daughter, and three sons, one of whom, FALLS L. THOMASON, has been associated with his father for a number of years as a representative of N. Y. & N. J. Lubricant Co. Funeral services were held in Charlotte on December 31.

CLEVELAND TRAMRAIL

MATERIALS HANDLING EQUIPMENT

- Planned unit loads of increased size or number of pieces will Speed up Production by Reducing Idle Machine Time.
- A Cleveland Tramrail System will handle these planned loads to and from your processing machines at the speed required to become A Pace Maker to Production.
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Photo 2440

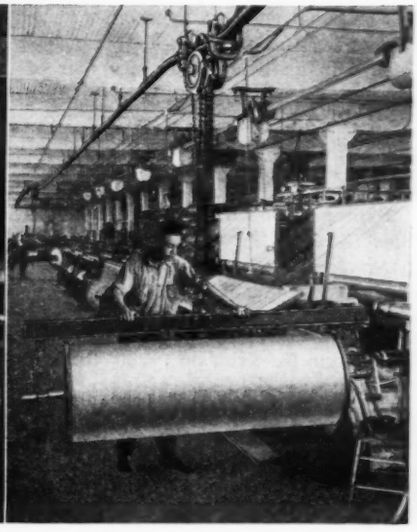

Photo 1339

Photo 2440 The Flexible Suspension of Cleveland Tramrail makes it practical to pick up loads off the rail center.

Photo 1339 One man handles 1200 pound warp beams.

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Division of

THE CLEVELAND CRANE & ENGINEERING CO.

1175 Depot St.

WICKLIFFE, OHIO

PERSONAL NOTES
about Men You Know

FREDERICK D. CORLEY, president of Marshall Field & Company, Chicago, has assumed the duties of senior executive officer of the corporation following the death of JAMES O. MCKINSEY, chairman of the board. HUGHSTON M. MCBAIN, formerly head of the manufacturing division, and more recently vice-president in charge of the retail division, again has supervision of the manufacturing division which embraces the textile mills of the company of which LUTHER H. HODGES, Spray, N. C., is production manager.

PHILIP C. WENTWORTH, treasurer of the National Ring Traveler Company, Providence, R. I., is now a director of the National Association of Manufacturers, having been elected at the annual convention held in New York the first week in December.

ARLINGTON KUNSMAN, formerly plant manager of the rayon division of E. I. Du Pon de Nemours & Co., Inc., offices in Wilmington, Del., has been promoted to director of rayon production. He is succeeded as plant manager by FRANT ERNST. WILLIAM J. BAKER has been transferred to plant manager of the Buffalo, N. Y., rayon plant. J. L. PARRISH has been transferred from chief supervisor of plant No. 1 to chief supervisor of plant No. 2.

HECTOR C. BORGHETTY, formerly technical director of the Aspinook Company, Jewett City, Conn., has become superintendent-chemist of the Pilgrim Piece Dye Works, Brooklyn, N. Y.

ARTHUR K. STEWART, who for the past 18 years has been with the Lonsdale Company, Providence, R. I., has joined the American Thread Company as agent of the company's Westerly (R. I.) Mills.

J. A. WHITE, formerly of Shelby, N. C., has become plant manager of the Slater (S. C.) Manufacturing Company, succeeding WYLLYS H. TAYLOR, who, as reported in the December issue of COTTON, is now general manager of the Appleton Company, Anderson, S. C.

MATT WILTSHIRE, formerly state service supervisor of the Home Owners' Loan Corporation, has resigned to become president of the Southern Fibre Corporation, a new company granted a charter in Virginia to process wool, rayon, and other fibers.

J. M. GAYLE has become superintendent of the Albert J. Barston Mill, Charlotte, N. C., succeeding W. N. BAIN, resigned. Mr. Gayle formerly was affiliated with the Klumac Mills, Salisbury, N. C.

J. H. NELSON, formerly master mechanic of the Washington Manufacturing Company, Tennille, Ga., is now chief mechanic at the California Cotton Mills Company, Oakland, Cal. Mr. Nelson is succeeded at Tennille by J. A. MCDOUGALD, formerly with the Eastman (Ga.) Cotton Mills.

JEROME A. NEWMAN has become president and treasurer of the Royal Weaving Company, Pawtucket, R. I.

JOHN G. OSWALD, formerly agent of Nyanza Mills, New Bedford, Mass., has become general superintendent of the Cabot Manufacturing Company, Brunswick, Me., succeeding GEORGE S. BROWN, resigned.

H. BUTTERY, formerly superintendent of the Waterloo (N. Y.) Mills, Inc., and Talcottville, Conn., has become associated with A. D. Julliard & Company, Stottville, N. Y. He is succeeded at Talcottville by LYMAN BAIN.

ARTHUR B. BARNES, treasurer of the Massasoit Manufacturing Company, Fall River, Mass., and Oakdale, Conn., has been made treasurer of the Ponemah Mills, Taftville, Conn., succeeding W. F. STAPLES, who is now treasurer of the Cabot Manufacturing Company, Brunswick, Me.

ODIS E. STEVENS, who at one time was general superintendent of the Saratoga Victory Mills, Inc., Albertville and Guntersville, Ala., has again become affiliated with Snap-On Tools, Inc., Atlanta, Ga. He will be sales representative in South Carolina, Alabama, Georgia, and Tennessee.

H. H. HILL has become manager of the Charlotte branch of American Blower Corporation, succeeding the late JOHN KIDD. Mr. Hill is a specialist in air conditioning problems.

B. W. BINGHAM, formerly general overseer of carding at Brookside Mills, Knoxville, Tenn., is now overseer of spinning at the Kinston (N. C.) Textile Mills, Inc. He is succeeded at Brookside by J. B. BELL, formerly of the Standard - Coosa - Thatcher Company, Chattanooga, Tenn.

ELWIN H. KILLHEFFER, Wilmington, Del., has been elected acting president of the United States Institute for Textile Research, succeeding FRANCIS P. GARVAN, deceased.

C. L. EDDY, formerly superintendent of the finishing plant of the Brandon Corporation, Travellers Rest, S. C., has become plant manager, succeeding C. F. TOURTELLOT, who is now assistant treasurer of the Merrimack Manufacturing Company, Lowell, Mass.

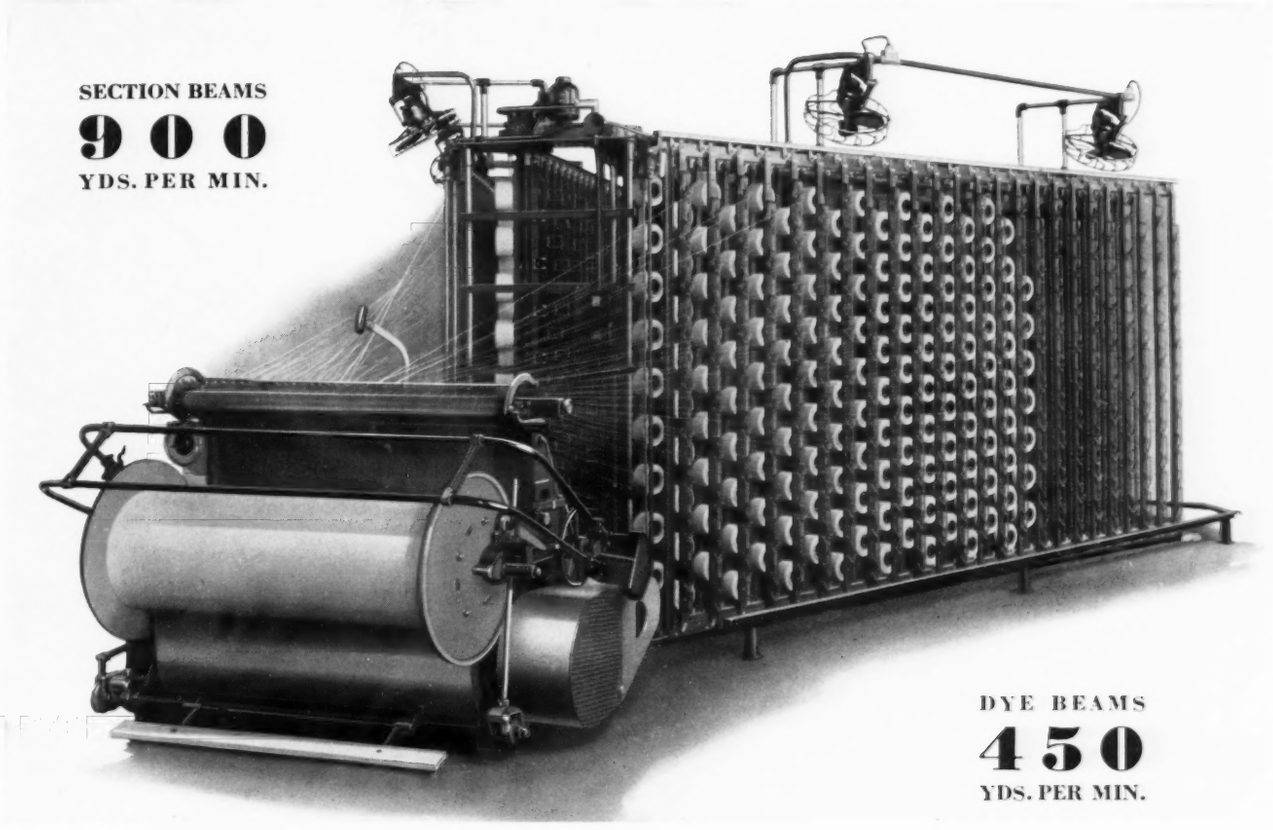
JAMES G. TORRENS, who has been in the statistical department of the Cotton-Textile Institute, Inc., for a number of years, has been made chief statistician of the Institute.

NEWTON G. HARDIE, who several months ago became assistant general superintendent of the Gossett Mills, Anderson, S. C., has now been made general superintendent of the Chadwick-Hoskins Mills, of Charlotte and Pineville, N. C., and the Martinsville Cotton Mills, Martinsville, Va., with headquarters in Charlotte. Prior to going to Gossett Mills, Mr. Hardie was superintendent of the Inman (S. C.) Mills. He removed to Charlotte on January 1.

ROBERT R. BERRY, JR., of Union, S. C., formerly connected with A. E. Staley Mfg. Company's Atlanta sales office, has become associated with U. S. Gutta Percha Paint Company, of Providence, R. I., with headquarters in Gastonia, N. C., and will represent the company in a part of the North Carolina district.

DAVE C. JONES has severed his connection with the Atlanta Harness & Reed Mfg. Co., Atlanta, and his territory—North and South Carolina and Virginia—will be covered by the district offices of the Steel Heddle Mfg. Co., located in Greenville, S. C., and Greensboro, N. C. This change became effective January 1, when the name of the Atlanta Harness & Reed Mfg. Co. ceased to exist, due to the merging of this concern with the Steel Heddle Mfg. Co., which acquired complete control of the Atlanta company some time ago.

JAMES OATES, formerly superintendent of Cherry Cotton Mills, Florence, Ala., is now general overseer of spinning, spooling, twisting, winding, and warping at the Sibley Mfg. Co., Augusta, Ga.



DYE BEAMS

Barber-Colman Super-Speed Warper

● The SUPER-SPEED WARPER, with a small amount of added equipment, is exceptionally well adapted to the winding of Dye Beams, where low and uniform density of the yarn mass is a major requirement.

● Beams soft enough for satisfactory dye penetration can be wound at relatively high speeds, because the delivery is over the end of the cheese and no drag is applied to the yarn. The friction of the yarn as it passes through the air furnishes a low and uniform tension on each running end.

● Both Section Beams and Dye Beams can be run on the same Warper with no time lost for changing from one type of beam to the other. By equipping the Super-Speed Warper with a two-speed motor, Section Beams can be run at 900 yards per minute and Dye Beams at 450 (providing the physical condition of the Dye Beams will permit such a speed.)

● Any Barber-Colman Warper can be equipped for running Dye Beams.

BARBER-COLMAN COMPANY

GREENVILLE, S. C. ROCKFORD, ILLINOIS FRAMINGHAM, MASS.

MAKE MONEY BUYING SONOCO ROVING CANS ___COST OVER 1/3 LESS

Roving Cans are a step-child of the textile equipment business. They produce nothing. They have no effect on quality of product; they almost never wear out.

There is only one way you can make money on Roving Cans . . . by holding down your capital investment to a point where the saving effected is important money: like the more than 33% saving you make when you equip with the SONOCO Roving Can.

SEAMLESS METAL RIM
ONE-PIECE SEAMLESS METAL RIM
HEAVY LAMINATED ESPECIALLY TREATED BOARD
METAL 7" KICK BAND
HEAVY ONE-PIECE COLD DRAWN STEEL BOTTOM

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. HARTSVILLE S. C. MYSTIC CONN.

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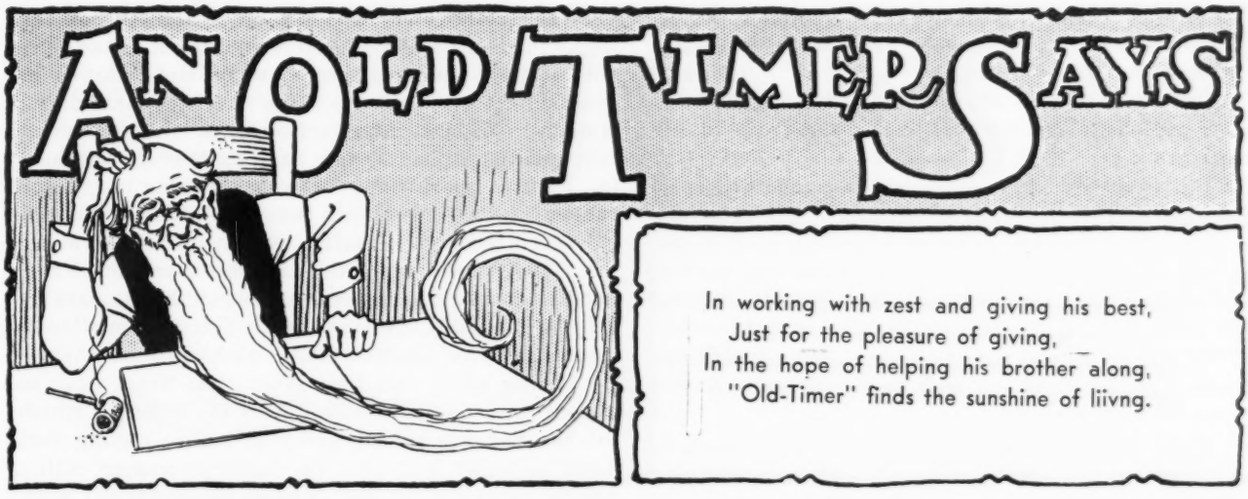
DEPENDABLE SOURCE OF SUPPLY


AN OLD TIMER SAYS
In working with zest and giving his best,
Just for the pleasure of giving,
In the hope of helping his brother along,
"Old-Timer" finds the sunshine of liivng.

"The Pleasure of Running a Section" (Part Two)

(Since this article is written in conversational style, it should be borne in mind that those paragraphs in regular type represent OLD-TIMER'S part of the conversation, and those in *italics* are JIM'S part.)

THIS resumes the serial discussion under this head which was started in the November issue and interrupted at Old-Timer's request by a special article on another subject. We suggest that you preserve all three installments (there is one to follow this one) and read the entire series together, as there is a definite line of thought extending throughout the entire discussion . . . . .

Why in heck, OLD-TIMER, *do loom fixers do jobs on their looms that they know is going to make more work for them?*

Search me, JIM, I can't answer that one except to attribute it to carelessness and that just-don't-give-a-damn attitude with which so many of them are possessed.

Yeah, but it does look like any man could see that little jobs like that, when not done correctly, would result in more work.*

Sure, JIM, that is common sense reasoning I'll admit, but the fact remains that all people do not use common sense reasoning. That freak of human nature is demonstrated in thousands of daily occurrences; even the man who plays golf will drive the ball into the woods and then try his darndest to drive the green from out of the woods, thereby taking two or three extra strokes, when if you had asked him *before* he tried to drive the green from out of the woods he would have told you that the sensible thing to do would be to play the ball back out into the fairway safely, thereby losing only one stroke. Most people, JIM, simply will not use their *own best judgment* in a lot of things, and that partly explains why the loom fixer did not give the wood screw another turn, which would have saved him that extra job on the loom.

Remember, JIM, that long conversation we had, when I told you that you had to *"make a man make money for himself"*? Well, JIM, if our readers will only look up that article and study it again they will see the reasoning set forth in that argument, bringing out the fact that the overseers and superintendents have to *make* section men do the jobs on their machines correctly in order to save those same section men work. Gosh, that does sound like a rather hard statement to make about intelligent human beings, doesn't it, but as illustrated in the foregoing, all classes of human beings come under that same category, thus emphasizing the importance of the overseers' and superintendents' position, which is to see that the section men do their repair jobs so that they will stay done the longest possible time, which will result in a minimum supply bill and a maximum production in any mill.

If the average overseer or superintendent could only realize what a *big* thing these *little* jobs amount to in a weave room, they would install a system of inspection and instruction which would not only bring the results previously mentioned, but, strangely enough, would make all the section men more content and better pleased with their jobs. Of course some of our readers may doubt or question the importance of our reasoning, but, in all seriousness, what we are setting forth here for the information of our readers is the result of an actual experience. We are not giving you fiction or talking out of our hats; we are giving you information which, if adopted by any overseer or superintendent, will make him so much more efficient as an overseer or superintendent that, just as sure as death and taxes, it will bring him promotion.

Here is one concrete case that we are going to tell you about simply to prove that we are not giving you hot air, but something that you can profit by if you will give the reasoning serious thought.

The illustration we are going to give is the ex-

*OLD-TIMER has just told JIM, in the November issue, that some fixers will use screws that are too large in fastening the hold-up strap to the picker stick, thus splitting the stick and making another job in the near future.

perience of a man who came to me just out of school and went to work in the mill. He is now a successful manager of a cotton mill at what any of us would consider a handsome salary. (My editor knows this man personally and can vouch for the truth of my statements.)

I'll try to give this man's experience as briefly as possible because I only want to prove that if a man will go about running a section or a room as overseer, or mill as superintendent, in a systematic way, he will not only make a reputation for himself but, oh boy, the pleasure he will get out of running his job!

Of course we will have to give this man a fictitious name because he is too well known to use his real name, so here goes:

Sloan worked in the weave room long enough to get to where he could tie on warps and do spare fixing fairly well, but it looked like a loom fixer would never quit so we could give Sloan a section, so, after talking the matter over with him we moved him into the card room to get some experience there.

A loom fixer quit and we took Sloan out of the card room and gave him the section in the weave room. After he had been on the section about two weeks I told him that if he would follow my instructions faithfully that in a year's time I would guarantee him that he would be running that section with less work than were most of the old loom fixers and at the same time he would be making all the other sections push to compete with him on production.

Sloan was a good pupil; he would pay attention to advice given him and he would follow to the letter instructions given him about fixing looms. I suggested that he put a scratch pad in his pocket and make a record of all the jobs he had on the looms he was flagged for each day. In a few days we could easily pick out the jobs which were causing the most flags. For illustration, we picked out the three jobs which he had the most flags on and I instructed him to inspect every loom he was called to, for those three jobs. I suppose the three jobs he had the most flags on were the battery, the stop motion and the filling motion. Then if he went to a loom to tie on a warp, just as soon as he had the warp tied on he would work over the battery, the stop motion and the filling motion, before leaving that loom.

Of course we had worked over the batteries, stop motion and filling motions together on several looms to decide just how to overhaul those jobs, based on the experience he had gained from having to work on these jobs where he had been flagged.

Any loom man will realize that in two or three weeks the battery, filling motion and stop motion jobs began to fall off, that is, he did not have so many flags on those jobs. "Now, Sloan," I explained, "you will soon begin to have some spare time, and the first time you look up and don't see a flag for a loom out of fix I want you to start over here at the end of your section and do those three jobs on each loom, going right down the alley. When you have a flag up, go fix the loom, then come right back here to where you left off and go on down the alley doing those three jobs on each loom until you go over every loom on your section."

We next selected two or three other jobs on his looms that he was having flags on (looms out of fix), and followed the same procedure he had followed in overhauling the batteries, stop motions, and filling motions. We continued this system until in about four months he had so few flags up that he was having a lot of spare time. After examining his rocker shafts, pitman arms, etc., we decided he could not only turn the rocker shaft*, tighten up pitman arms, see that his head gears were not worn on the pick**, but that he could soon get two looms a day on days he did not have so many warps out. This system allowed him to get over his 96 looms in about two months.

During all of this time every time Sloan went to a loom for a flag he would first fix the loom for which job the flag was raised, and then before leaving that loom he would look over the battery, pickers, filling motion, stop motion and daggers or protection rods. These were the five items he finally found out that got out of fix more than anything else on that model loom. One day I was making my regular inspection tour through the weave room and saw Sloan standing at his work bench with his arms folded. As I caught his eye he winked and motioned for me to come by.

"I am out today," he said.

"Who's on your section?" I asked.

"Oh, I'm just hanging around so I will still draw my pay, but I am not doing any work; haven't had but two flags up this morning, and don't think I'll have but one warp out this afternoon. I let my stomach get out of fix, which made me bilious, and I had to take a lot of medicine last night. I felt so bad this morning I decided to just stand around today and watch her run."

"Well, that's what I call getting the benefit of your brain work. Didn't I tell you so, Sloan?"

"Yes, sir. It's lots of fun, isn't it?"

For the reader's further information, will state that the general overseer of carding in our largest mill resigned to take a position as superintendent and we took young Sloan off of a section in the weave room and gave him this position as general overseer of carding. Of course we did not call him overseer of carding right at the start, because the second hands and some of the grinders in that large card room had been there a long time and were old enough to be young Sloan's father. How we put that part of the change over and how young Sloan gradually worked himself into the good graces of those men, at the same time retaining their full respect and loyalty, is a rather long story—a study in human nature which space here will not permit our relating. Maybe we will tell you the story sometime. Young Sloan ran that large card room successfully several years; he was promoted to quite a large mill as superintendent and is now general manager of one of the finest plants in the South, at a handsome salary, as mentioned.

During all of his experience as an overseer he

*Or push the rocker shaft through from one end far enough to get an unworn part of the shaft in the bearing, which served the same purpose as a new rocker shaft.

**If the teeth in the crank shaft or cam shaft gears were worn enough to cause lost motion on the pick, he turned the gears to a new place—this is called "changing the pick".

continued doing all of his work systematically like he was taught to run a section. For example, I could walk into his office one day and say, "Sloan, when were your stop motions on drawing inspected?"—in two minutes he could tell me the exact day he had personally inspected those drawing stop motions or anything else I wanted to know.

Now, JIM, do you begin to see what I meant when I said I got more pleasure out of running a section than the other fellow?

Yeah, OLD-TIMER, *but you have been telling us about how young Sloan ran a section and that don't tell us how you had so much pleasure, as you call it.*

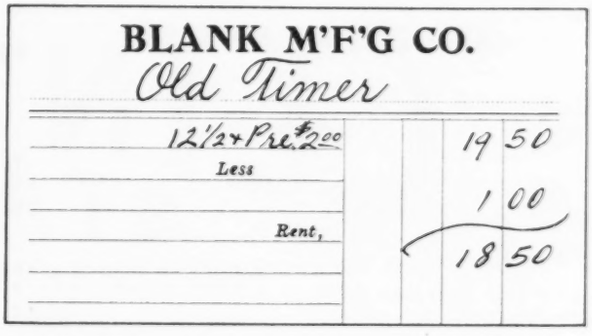
"Old-Timer" Again Gets to the Job Before the Job Gets to Him

Can't you see, JIM, I gave you the experience of young Sloan because that is the way I ran a section, but the looms I worked on, JIM, were so entirely different from the looms in cotton mills today that to tell about how I kept ahead of the jobs I had on those old looms would not be much information for these young overseers and superintendents of today. For example, my looms were all overhead belt-driven, which did not help the fixing job much, but aside from that, the head gears were fastened to the crank shaft with two round-nosed set-screws set at an angle from the key. Well, JIM, the darn things just simply would not stay tight, and if one happened to run loose awhile both the key and key-way would wear, then we had to drift the head gear off with a ten-pound hammer and a drift; then get an old tin can from around the store and cut tin shims to put under the key, take a center punch or blunt-nosed chisel and hammer the key-way back so it would fit the key, then drift the head gear back on. Usually a good four- or five-hours' job, having to stop during the work on this job and get other looms to running which would get out of fix on that section. We did not have machine shops to take the crank shaft jobs to in those days, JIM.

After working my blamed head off for several months, trying to get that section so I could run it with a reasonable amount of work, I started to putting the date inside of the loose pulley with a piece of chalk on every loom on which I had to fix a loose crank shaft. By the time I got around to having some of the crank shafts to come loose again that I had dated I found out that they would average running 12 to 16 weeks after being tightened up. Therefore, I decided I would get ahead of Mr. Crankshaft by tightening him up every 13 weeks. I had 80 looms. I started out by working on some looms every day, then I realized I could get a little more production by not stopping these looms to tighten the head gears, so I changed my procedure and tightened the head gears on the looms I had to tighten that week on Saturday after stopping time. This meant that for 12 weeks I tightened the head gears of 6 looms a week and on the 13th Saturday I tightened them on 8 looms.

JIM, I never had to take out another crank-shaft on account of the head gear coming loose, and it only took me about 10 minutes per loom to take off the loose pulley and pull on the two set-screws or put in new ones if necessary. This system absolutely fixed the one big job of fixing those old looms and saved me so much hard work, at the same time helping my production too, that I decided to use the same system on all the other jobs on those old looms which had caused the section men so much work.

Therefore, I started keeping a record of every flag (loom out of fix) I had during the day, just as I have explained to you that I started young Sloan doing, and with the same results; that is, in about a year I was running my section with about half the amount of work the other fixers were doing and had no trouble at all in beating the wax out of the other section men in production.



BLANK M'F'G CO.

Old Timer

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"Old-Timer" shows us one of his pay tickets, received when he was one of the boys and fixin' looms. He admits this was long before the days of Social Security—and he didn't worry about paying income tax either . . . . . .

The mill gave a premium of $2.00 per month for the highest production, and here is one of my old pay envelopes, JIM (see illustration). See that $2.00 premium, old fellow; well, I never missed getting it. Guess this pay envelope will look a little strange to these young fellows who are drawing down $25.00 a week for running a section now; at that time mills paid off twice per month; you see my envelope calls for 12 days plus one-half day for helping take up counter-belts. The pay was $1.40 per day. Twelve and a half days at $1.40 = $17.50, plus $2.00 premium for production, or a total of $19.50, and, boy, I was sitting on top of the world; never failed to save $4.00 out of each pay check; with that, along with what I was making on the side teaching arithmetic to the fellows at night, I soon began to build up a little bank account; and, speaking of bank accounts reminds me that although the subject of saving a part of your earnings may not be considered by the average man as having any bearing on running a section in a cotton mill, OLD-TIMER claims that it does have a very important influence on any kind of work, not only in a cotton mill, but it has a marked influence on a man toward his work in any kind of employment in manufacturing or in any other vocation where wages or salary is the compensation.

(This series on "The Pleasure of Running a Section" will be concluded in the February issue—unless Old-Timer interrupts us again, as he did in the December issue, with something special. The final installment will continue his discussion of saving, with which the above section ends.—The Editors.)

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HOW OTHER MEN MANAGE

Practical Discussions by Cotton's Readers On all Varieties of Mill Subjects

Safety Program

Maybe we have neglected this subject. Let's have more ideas from other mill men . . . . .

EDITOR COTTON:

This job of operating a mill, or any part of one, consists of so many things besides production, cost and waste, that we sometimes seem to overlook some of the essentials that are almost as important as some of those things mentioned. Take for example the safety program of the mill, just how do we feel when this subject is brought up? In the discussions in the "HOW OTHER MEN MANAGE" department of COTTON we have noticed very little, if anything, regarding accident prevention, yet we will have to admit that is an item of much importance.

We have in mind a young employee who is very energetic. He always tries to keep ahead of his job, but in doing so he often takes unnecessary chances and has already had one rather serious lost-time accident. The other day we caught him doing a job in a very unsafe manner; the fact is he previously had been cautioned about this very thing. Someone is to blame. Possibly we are to blame for his attitude. What did we do? Well, we put our arms around his shoulders and told him, without beating about the bush, that, while we appreciated his efforts to keep up his job, a repetition of this "offense" would result in very positive action.

An overseer in telling of an experience along this line said that at a safety meeting pressure was being applied to get each foreman to promote a safety campaign in his department. This man said he counseled the men to go easy, that if anyone started to talking about accidents the mill would have a wave of them, so after the meeting he did not even tell his second hand what had taken place. That very day one of his men had an accident which resulted in several weeks lost time.

Of course it is the duty of the overseer and the second hand to observe constantly the manner in which the various operations are performed and to be always on the alert for unsafe conditions of any kind, but the majority of us will do better if we will take one day a week to observe and to try to correct unsafe working conditions. Sometimes a condition exists that effects your men, but is under the direction of some other department. Make a note of this on the weekly round and present it at the next safety meeting or at the overseers' meeting. Continue to do this and something will finally be done about it. If in making the rounds a man is observed exposing himself to some hazard, try to show him how he will be the loser should an accident occur. When you notice a fixer who has a job to do that requires heavy lifting or straining, take enough interest in him to see that he gets sufficient help to perform the job with safety. When you have completed your weekly round make a list of hazards that should be corrected, then with the aid of the second hand tackle this job just as you would if you were trying to reduce your waste or lower your cost.

Insurance companies are co-operating with the mills in promoting safety programs by furnishing safety posters, keeping comparative accident records, holding safety meetings with the overseers, and in other ways. Aside from reading the posters the employees will know little about the safety program of the mill unless the overseer and the second hand of the department show by their actions that they are squarely behind any movement that will create safer working conditions.

TEX (GA.)

Needle-Point Grinding

Agrees with original article, says method is beneficial . . . . . .

EDITOR COTTON:

I have been reading with a great deal of interest the experiences* others are having with the new method of needle-point grinding. "CONTRIBUTOR NO. 6652", on page 137 of the June, 1937, issue, went to considerable trouble to criticize the system of grinding and then admitted he had not tried it. I wish to agree with the author of the original article that appeared on page 71 of the January, 1937, issue; he is right in practically all the claims he makes for the system.

There is no doubt in my mind but that it would well pay any mill to use the needle-point grinder if the card clothing is not practically all new.

In grinding with the needle-point grinder, a series of grinding discs are securely fastened on a traversing cylinder, making it possible to grind between the wires and thus to obtain the needle point. Some who have tried the grinder attempted to run the discs too deep into the wire and therefore did not have such good results. We have found that 1/8-inch is the best depth for our plant.

One of the contributors seems to think that the wire will be damaged or that the card will not strip well. We have never ground any of our clothing so

*The original article was written by H. G. Lyon and appeared on page 71 of the January 1937 issue of COTTON. A letter discussing this article was written by our "CONTRIBUTOR NO. 6652" and was published on page 137 of the June 1937 issue. On page 109 of the September 1937 issue both Mr. Lyon and another man, "CONTRIBUTOR NO. 6714", responded to "CONTRIBUTOR NO. 6652".

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deep that it is injured. Usually, on average clothing, the distance from the point to the knee of the wire is about ¼-inch, therefore if the grinder does not go deeper than ⅛-inch there still will be ⅛-inch of wire that has not been ground before getting to the knee.

I do not think that anyone will experience any great amount of trouble in stripping; however, the first time or two the clothing may not strip out quite as well as with the conventional grinding method. This can be helped a great deal by running the burnisher roll all the time the needle-point grinder is running.

CONTRIBUTOR NO. 6744

Preventing Yarn Slipping On Loom Beam

EDITOR COTTON:

I am not certain that I can tell "CONTRIBUTOR NO. 6662" anything new when he asks what causes the yarn to slip on the loom beam on page 129 of the June issue of COTTON.

I have noticed that beams on which the yarn slipped have come into the weave room at rare intervals. Sometimes these beams were soft, but then again they had been beamed from the slasher under the correct tension and were firm, apparently. At first I thought the trouble was caused from negligence on the part of the slasher tender, but later I changed my mind.

In our plant we used only one length of brown sticking paper, about 1½ inches wide, as a lease when doffing a beam from the slasher. Another length of the same paper was placed on the yarn at the slasher and used as a means of keeping the yarn straight when starting a new beam. No other method was used to hold the yarn in place on the beam except the successive layers of yarn that were wound on the beam. Thus there was a possibility of the yarn slipping as the end had not been fastened in any way. Under these conditions, the press roll at the slasher had to be operated perfectly and even then there would be more waste or yarn left on the beam than was necessary—all due to the warp slipping on the beam.

Later we began using wood sticks in the slot provided in the beam as a means of holding the ends to the beam. We found that this prevented the warp from slipping.

It is essential that the tension from the delivery roll to the loom beam be regulated and be kept regulated throughout the entire running of the warp.

CONTRIBUTOR NO. 6676

EDITOR COTTON:

"CONTRIBUTOR NO. 6662" can prevent the yarn slipping on the loom beam by packing it tighter on the beam as it is wound on at the slasher. This may be accomplished by adding more weight to the roller device which presses against the yarn. Also, the yarn will be held better on the beam if the beam barrel is made rough.

"THE ROVING FRAME"

EDITOR COTTON:

I have just finished studying the 13 articles in your book, "The Roving Frame" by Fay H. Martin, which is a compilation of those articles appearing in COTTON. This book is the greatest treatise on roving frames that I have ever seen. In a simple and understandable manner Mr. Martin explains such things as draft, lay, tension, twist, and that bogey, the roving frame cone, so that anyone may understand it. I suppose that by now other textile mill classes, and even the textile schools in colleges have adopted it. I had often wondered what "Wash" meant when he wrote of the "hyperbola curve", and now I know—it is simply the percentage of decrease in the excess speed of the bobbin from one layer to another, and when these percentages are plotted against their respective bobbin diameters they form the hyperbola curve. The drawings are also very helpful. This Mr. Martin must be a wonder to put such technical information in such simple language. Enclosed is my dollar to pay for another book, which I am giving to one of our second hands.

J. F.

The beam barrel can be wet with water and the first few rounds of yarn will stick to it better.

Our beams have grooves in them to hold a small wood strip with the yarn under it. We are not using the wood strips now but we have used them on osnaburgs. This was because the osnaburg could not be packed tight enough on the beam to hold unless the stick was used as a brace.

CONTRIBUTOR NO. 6677

Heats Sand Roll Fillet

EDITOR COTTON:

I have seen loom fixers in mills use various methods of replacing sand roll fillet. Some of them believe it is best to start at one certain end and work toward the other in all cases. Others consider it of no import at which end the tin fillet is begun on. Some tack the fillet at the ends only and others tack it all the way across, at every place available in the sand roll.

We use a method at our plant that has proved satisfactory and that does not allow the tin fillet to buckle. The loom fixer, wearing gloves, uses a blow torch and heats the tin fillet while it is in the roll and before it is put on the loom to a good hot temperature. Then he places it on the sand roll and tacks it down. When the fillet is heated it expands and after being put on the sand roll it contracts and becomes very tight.

We weave rayon goods and it is essential that the sand roll be covered properly; with the foregoing method we do not have any bad cloth due to a faulty-covered sand roll.

The blue flame from the blow torch will heat the tin fillet better than the yellow flame, and it is obvious that the loom fixer doing this work should wear gloves. He should wear gloves anyway even if the heat were not to be employed because otherwise his hands would become rough and would pull the rayon ends.

CONTRIBUTOR NO. 6762

How Do You Figure Average Counts?

Asks the readers of the paper to correct him

Editor COTTON:

There arose quite a discussion in the textile class of which the writer is a member concerning the correct method of figuring the average counts in a ply yarn consisting of several ends of different counts. We wish to present our view of this subject as it might be of some interest. To make the matter perfectly clear we are not figuring resultant counts of the yarn after plying several threads of different counts, but are figuring the average of the yarns that go to make up the ply yarn.

Let us suppose that we are plying 1—20s, 1—25s, 1—40s and 1—50s. Some of the class found the average counts as follows:

1—20s
1—25s
1—40s
1—50s $135 \div 4 = 33.75$s average count.

4—135

The writer contends that if the yarn counts are very close together this method might give a sufficiently accurate answer, but for yarns varying from 20s to 50s this method will not be correct. In "Yarn and Cloth Calculations," by Thomas Yates, on page 8, we find the results of weighing 4 skeins of yarn as follows:

1 Skein 20 Grains 1000 divided by 20 equals 50s
1 Skein 20.5 Grains 1000 divided by 20.5 equals 48.78s
1 Skein 19.5 Grains 1000 divided by 19.5 equals 51.28s
1 Skein 19 Grains 1000 divided by 19 equals 52.63s

202.69

202.69 ÷ 4 (skeins) = 50.67s average counts.

Now let us add the weight of these 4 skeins. We find the result to be 79 grains, which divided by 4 will give an average for the 4 skeins of 19.75. According to the yarn formula, 1000 divided by 19.75 will give 50.63s which figure we believe to be the average counts. However, this figure is near enough to 50.67s for practical purposes.

Now let us go back to our original problem.

1 skein 20s weighs 50 grains.
1 skein 25s weighs 40 grains.
1 skein 40s weighs 25 grains.
1 skein 50s weighs 20 grains.

4 skeins 135

135 ÷ 4 = 39.75 grains. (Average weight of the 4 skeins.)

Using the regular yarn formula, 1000 divided by 39.75 equals 29.63s. It is our contention that 29.63s is the average count instead of the figure of 33.75s as some of our friends hold.

We would like to quote from Mr. Yates' book, "Yarn and Cloth Calculations," this time from page 68. "To find the average counts of warp yarns when two or more different counts are used: [Evidently referring to yarn on beams.] RULE. Divide each number of ends by its own counts, equals relative weight; add the weights and divide into the total number of ends." Applying this rule to the 4 ends that we have plied together we get the following results:

1 end divided by 20 equals .05
1 end divided by 25 equals .04
1 end divided by 40 equals .025
1 end divided by 50 equals .02

4 .135

4 divided by .135 equals 29.63s average counts.

We have thus arrived at the figure 29.63s by using two methods of reasoning and while we do not believe it is customary to make plied yarns by using such widely varying counts as those used in this problem, yet a similar problem did come up in the class, and as there seemed to be some misunderstanding as to the correct method of figuring the average counts, we thought other readers of COTTON might be interested in a discussion of the subject.

If the writer has erred in either—his calculations or in his methods of reasoning—we feel sure that some reader of COTTON will make a prompt correction.

CONTRIBUTOR No. 4022.

Disagrees With "Wash"

Doesn't think "Wash" gave clear answers to his own questions . . . . . .

EDITOR COTTON:

On page 111 of the September issue of COTTON, "WASH" answers the questions that he asked and were published on page 90 of the July issue. I think his answers were as clear as mud.

In the first question, *Referring to any differential, what is meant when we state "the additional compounded speed or additional impetus caused from the cone"?* the nearest he came to answering this was when he said "the cones have to be modified to get a uniform tension from empty to full bobbin". The second question was *Why is the Holdsworth compound a simple proposition regarding the cones than a compound wherein there is a differential or difference in speed between the spindle and the bobbin?* "WASH" took up the Tweedales Smalley differential and shows that there is 1/5 loss to the bobbin driver gear for every revolution of the jack shaft (though he does not state it in this manner), so for this reason or to make up for this loss, we must have a 50-tooth bell gear. In the next to last paragraph he states, "So, it can be seen that as the spindle gear on the shaft driving the spindles has 40 teeth and the bell gear 50, with a loss of 1/5 revolution, both gears are equal to 40." Now can anyone see where there will be a difference in the speed of the bobbin and the spindle on this frame, when the loss makes both gears equal. I am speaking of the speed which is derived through the compound

"CONTRIBUTOR No. 6684" answered these questions first on page 109 of the August issue.—The Editors.

alone, not having any aid from the cones. I will admit there is a difference in the speed of the drivers, but the question asked where there is a difference in the speed between the spindle and the bobbin.

Question No. 3 as asked by "WASH" was *Can the same cones be used on both the Holdsworth and any new differential? If not, why?* His answer to his own question was "No! Because the speed of the bottom cone must be greater to drive the bell gear at a greater speed than that of the driving shaft during winding of the roving." I wonder if this bobbin driver does not have to run faster on any make of frame in order to wind on the roving which is delivered? That is all his bottom cone is doing on this frame because "WASH" goes on to prove that both gears are equal to a 40, counting the loss. Now it may be possible that the bottom cone does have to run faster on this make of frame in order to accomplish this, but if it does, it is because of a difference in the gearing between the bottom cone and the gearing of the compound, or should I say the difference in the manner of their drive to or through the compound. I have not figured this out as yet to see for myself as I am away from home at the present time.

The rest of the answers by "WASH" are along the same line about the cones having to run faster and the cone belt slipping; that is why he favors the Holdsworth compound.

I too like this compound best, but it is because of its being a square compound and I don't think that the gearing wears quite so badly in it, or that it places the strain on the gearing that the other types do. On some compounds the stud that goes through the arm is often sheared off. As to the cone belt slipping more on one than on another, I have never noticed this, and I have fixed on them all.

CONTRIBUTOR No. 6684

Tying-in Room Kink

Keeps the machine in operation

EDITOR COTTON:

I have found a "kink" pertaining to the tying-in room that may be helpful to another mill man and that may keep the tying-in machine turning out normal production.

The wings used on the Barber-Colman warp tying machine are brittle and are broken unless handled with care. However, if the fixer finds one or both of these wings broken, and none in the supply room, there is no cause for worry because they can be shaped to keep the machine in operation until new ones can be bought.

The square ends can be ground to a point and all the rough edges smoothed with fine emery cloth or on the oil stone. When they are put back into the machine, the top wing goes on the bottom and the bottom wing goes on the top. This brings the points to the front—where they should be.

CONTRIBUTOR No. 6771.

Grain Side of Belt Goes Next to Pulley

This fellow goes into history of belt being run with flesh side next to pulley . . . . . .

EDITOR COTTON:

In answering the question by "CONTRIBUTOR No. 6615", which appeared on page 115 of the March issue of COTTON, with reference to running a leather belt with the flesh or grain side next to the pulley, I am happy to offer the following comments:

Running the flesh side of a single ply belt to the pulley is the result of a habit of long standing in Europe where undoubtedly the practice arose from other than scientific reasons. For instance, all belting manufacturers have always shipped rolls of belting rolled up with the flesh inside and the grain outside because the grain is highly polished and makes a better appearance. When the user cuts a length off the roll for installation on a drive he is very likely to put the grain side out (flesh side to the pulley) both for the appearance and the natural curvature in the length of belt caused by being in the neatly wound roll. In the past practically all belting was single ply and this practice of putting the flesh to the pulley became deeply rooted in European industry where only lately has double ply belting been gaining widespread use. Old time overseers, particularly Europeans, or old time Americans who have been brought up under Europeans, are unanimous in their desire to run single ply belts with the flesh side to the pulley, and we can readily understand their tending to adhere to a long established habit. However, a close examination of the cellular structure of leather belting should shed a great deal of light on this age-old controversy.

On the grain side of belting the fibers of leather stand perpendicular to the surface providing, with the sweat pores and hair root openings, a porous grain which is an ideal friction surface to put to a pulley face. Actual tests by R. F. Jones, eminent engineer, show that this porous grain will pull from 40 to 50 per cent more than the tightly and thickly woven flesh side. For instance, he found that a 4-inch heavy single first-class oak tanned belt at 432 pounds tension would transmit 27 horse power at a given speed running the flesh side to the pulley. The same belt, running under identically the same conditions on the same drive, but with the grain side to the pulley, transmitted 52 h.p.

There are other reasons than higher coefficient of friction for running the grain side to the pulley, and not the least of these is the relative tensile strength of the flesh as against the grain. Should you split a single ply leather belt in three layers of equal thickness, the grain split (⅓ of the original thickness) would contain only 17 per cent of the tensile strength of the entire piece. Remember that we said the cellular structure of the grain side is perpendicular to the surface of the belt and the fibers naturally cannot be intertwined to give high tensile strength. The middle split will contain 33 per cent of the tensile

strength of the whole piece, showing the more mottled and thickly woven nature of the fibers in the middle split. And the flesh split will have 50 per cent of the total tensile strength of the whole piece. Here the fibers lay parallel to the surface of the belt and are thickly interwoven. Running the grain side to the pulley allows this strong side of the belt to withstand the maximum distortion made necessary when the belt bends around a pulley, reducing to a minimum chances of breaking down the fibers and pulling them apart.

Scientific tests and general practice have proven that the grain side should be run to the pulley and we believe a careful analysis of belt wear will convince most users of the advisability of this practice. The best way to settle this question is to use a double ply belt; it lasts three to four times as long, costs hardly twice as much, and gives much better service.

CONTRIBUTOR NO. 6624

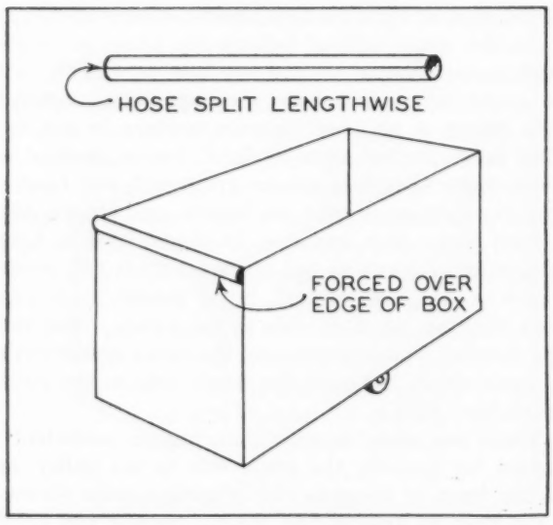
Weave Room Kink

Suggestions of this type are helpful to other mill men. If you have such a "kink" in your mill, let us have it . . . . . .

EDITOR COTTON:

Here is an idea that will help prevent rusty filling and also cut fingers of the battery filler.

In nearly all mills battery fillers have metal boxes in which they push their filling. Due to perspiration from the battery filler's hands, the edges of the boxes become rusty and finally wear in two, leaving a rough edge that will cause a bad cut if the operative is not careful. Besides cut hands, rust will come off of the battery filler's hands and will get on the filling.



To overcome this, get a short length of rubber air hose, or water hose, slit it lengthwise and force it over the rough edge. The hose will wear indefinitely and will not come off. Thus no rust will form on the box edge and the operative will not cut the hands.

This will work equally well on wooden boxes and prevent splinters getting in the battery filler's hands.

CONTRIBUTOR NO. 6747

"The Old Card Doctor"

(Second Visit)

Some picker room pills . . .

EDITOR COTTON:

Eternally looking for something that will help in cotton manufacturing,* the "Old Card Doctor" steps back into the picker room, probing around, here and there, trying to find just what can be done to improve the health of both yarn and fabric, and we find him beginning at the opener, tightening the lift-apron to make sure that it is in perfect line with all cross-shafts, perfectly free and in line crosswise the opener, and that all slats are riveted firmly to the canvas backing. He sets the striker, or doffer, just as close to the lift-apron as possible so that the pins in the doffer and apron do not come in contact with each other.

Now, he says, to pulverize the cotton we will increase the travel of the lift-apron to twice the speed it has been making, the speed now being 28 rounds per minute, and, with this close setting of apron and striker we are pulverizing the cotton and at the same time removing quite an increase of the foreign matter and delivering the cotton to the breaker in such an open condition that it is almost impossible to damage the fibers due to the fact that it has been opened up so thoroughly that tufts are a thing of the past, and, not only that, but the beater is now able to function and to do its work without damage to the fibers.

Another great advantage is that the fan speed can be reduced by one-fourth to one-third, and as we all know that when we reduce fan speeds we help clean our stock. Some of us have to run excess fan speeds because we have failed to open our cotton as thoroughly as we should. Now the opener is certainly the first place to start quality manufacturing, and also the place to start building a strong piece of yarn. You will no doubt remember that there is an apron moving toward the feed rolls in the opener to which the lift-apron delivers the pulverized cotton, which, being sprinkled in an even sheet from side to side, practically all of the fibers get the same treatment and cleaning. This cotton then, because of its fluffy condition, is not so hard to lift to the second floor; therefore, the fan speed can be reduced on the breaker.

As the old doctor reached this machine he was beginning to get right next to something very important; any way, the cotton is delivered to the box right behind the feed rolls onto the moving apron which takes it into the feed rolls. Having had the beater set in the opener to $\frac{3}{8}$-inch, the fibers are certainly not damaged. The next thing to be set is the breaker beater—to $\frac{3}{8}$-inch to feed roll, and, beginning at top of grid bars, set $\frac{3}{8}$-inch at top to beater and taper to $\frac{3}{4}$-inch at bottom, and, right now, the doctor is going to give you a kink to put you to thinking; yes, it can be done; don't begin to fuss.

*Another visit of "the Old Card Doctor" was reported on page 91 of the July issue.—The Editors.

Just think it over and see if this cannot be worked out to a practical advantage. As you are aware, we have what is known as sand-bars, over which the cotton slides as it leaves the beater on its way to the cage, or screens, to be drawn on through to be delivered to the calender rolls.

However, let's go back to where the cotton leaves the beater. On the inside of our machine we place a moving apron that takes up the space from beater to screen and delivers the stock to the screens in a much smoother and evener condition being blown up there against the screens in such an uneven condition as has always been the former and present practice. It not only delivers the stock in a much evener sheet but allows a larger amount of foreign matter to fall into the sand, or dust box, and this apron has the same travel as the screen, or, slightly faster; and, here again, it is possible to reduce further the fan speeds, which is very necessary to quality merchandise. This idea can be carried to all opener and picker room machinery to a great advantage to the smart manufacturer, and, by a continual study of the machinery being dealt with day after day, there are ten thousand things that can be brought out to amazing advantage.

Preventing Laps Splitting

After the cotton has passed the cages and is moving on the sand plate 12 inches, or less, an apron can be placed in this opening very satisfactorily, preventing any stretch at this point, and the mass of cotton will be delivered to the calender rolls in such an even condition that it will be readily noticed. Then, to prevent lap splitting, he instructs, turn off the weight roller that works on the lap between the bottom calender roll and the back bed roller, and, he says too, you have a finger board just above the lap behind the top calender roller which fingers the lap continuously, making it about 3 inches apart, and the weight roller working on the lap is turned off in a corresponding manner, which almost makes it fool proof to lap splitting.

The doctor prescribes placing a ½-inch thick extra facing on the fiddle back that will make the lap 1-inch shorter than the width of the card, stating that this, in itself will help to prevent lap splitting on the cards.

I have wondered, for some time, if we mill men really are interested in ourselves and the welfare of our employers to the extent that we will lose some sleep for the matter of having plenty of time to think for the interest of our company. The old doctor has tried several beats per inch test on his pickers and just the other day he and one of the fellows were talking regarding beats per inch on pickers, and the fellow told the doctor that he liked to beat cotton 42 to 60 beats per inch, explaining that he wanted to clean his cotton. Look here young fellow, he said, let's try to reduce from 42 to 60 beats to 20, and see what the results will be. And, as the doctor had explained, there the tensile strength went up like a skyrocket. 16s breaking 112 pounds went to 126 pounds. Gosh, Doctor, said the man, that certainly did do the work. Well, he said, there isn't any use to beat your cotton into powder and expect to get tensile strength.

The old doctor received a letter in July, 1937, asking for some of the inserted information and asking what speeds he should run his beaters and just how many beats he should give his cotton. To his surprise, this inquirer did not mention the condition of his machines; however, he had gotten permission to change his beater speeds and wanted to get the right information.

Making the Evener Motion Sensitive

The old doctor appreciates the confidence of these fellows and wants to help them with any of their problems anywhere in their departments, if they will simply write asking for what they want. It has always been a pleasure to him to pass information along to young men coming up to take the places of those who must pass on sooner or later; he says, I am in the picker room trying to find and give out information that will not only be helpful to the carder, spinner, twister, winder and weaver, but to impart information to the superintendents and managers and to pass on some "kinks" to the machine builders. The doctor has in time put ball bearings on all apron shafts, feed rolls, beaters, fan shafts and screens, and cross-shaft and ball bearings in the head of lap rack, or, logger-head.

Now we will look over the evener motion and make it just as sensitive as it can be made so there will not be any sluggishness there because the evener weighs the lap as it is being formed, and, certainly, the evener is a very important factor in forming a lap; and, how the lap will be formed does depend on knowing how to prepare a picker to form the lap. Now we should have a humidifier in front of our finishers so that the proper moisture will be wound into the lap as it is being formed, and with this moisture you can wind a firm smooth lap in firm compact manner which is essential to quality yarns and fabrics. Now, as to the handling of laps after they have been formed: they should be handled very carefully and kept in the picker room where the moisture will be held in them as well as possible, and when taken to the cards, the card men, or tenders, should be taught to handle with care and not to dig holes in the laps as this will prove very disastrous later on in the course of manufacture.

Remember this one thing, that after bad work has been made, IT IS MADE. The time to act is before things happen, and the time to make machinery do better work is before you have ruined a lot of merchandise; and the time to prevent things is before they happen. The doctor has been called by various ones to counsel them in their manufacturing troubles, and has always been able to learn something in return, at the same time, and he certainly hopes that the foregoing will prove profitable to those who are earnestly seeking information on their every-day problems.

The doctor will return to the cards in a later discussion to complete his visit to a friend, and, until then, BE THINKING.

"Wash" Admits Error

But is proven wrong by a man who is in error. This is spicy. Follow the discussion from your back issues.

EDITOR COTTON:

In the January, 1937, issue of COTTON, page 97, I find an article entitled "Comments for 'Wash'," and written by "CONTRIBUTOR NO. 6569". In the first paragraph he states, "In rambling through my back files of COTTON, I came across a question by 'S. I. C. (N. C.)' on page 73 of the November issue."

"CONTRIBUTOR NO. 6569" set me to rambling through my back files of COTTON too. On page 807 of the August, 1922, issue of COTTON I state, "No man is always wholly right or wholly wrong. Therefore, we criticize one another, not with the spirit of getting the best of the individual, but, instead, to clarify and drive home the best practical points for our mutual benefit." That was almost 15 years ago, and I have not changed my mind, and, it is my intention to try and clarify the question of "S. I. C." to the best of my ability.

"CONTRIBUTOR NO. 6465" deserves a lot of credit for bringing up the matter again, otherwise, many of the boys would be misled. So I am going to try and be fair and clarify the matter, for, I have the boys at heart always, and would not have them misled. I am always quick to knock any contributor that I find wrong, and I expect the same treatment when I am wrong.

A man is like tea. You must put him in hot water to get the best out of him, and "CONTRIBUTOR NO. 6569" surely has me in hot water, where I deserve to be.

"If I am setting up a fly frame among others of a different make and can't get the right flyer speed, hence the front roll speed desired, can I effect the desired change with the gears? Suppose I have a 45-tooth gear on the jack shaft which drives the spindles and a 48-tooth gear on the top cone, receiving motion through an idler from the twist gear. I put a 48-tooth gear on the jack shaft, which causes the spindles to go 48-45 as fast as they did and I next put a 45-tooth gear on the top cone shaft (a driven gear) which causes the top cone, and hence the front roll, to go 48-45 as fast as they did. The spindles and front roll have now been speeded the same amount and I have an 18-tooth gear on the bottom cone. What size bottom cone gear do I need to make the fly frame run? Is it practical to speed up fly frames in this manner?"

That was "S. I. C.'s" original question.

Now open Vol. 2 of "Cotton Mill Machinery Calculations" by B. M. Parker, and turn to page 142, and here you will get the train of gears for both the standard and excess speeds. So, we have in the train for standard speed:

$$\frac{400 \times 42 \times 60 \times 46}{40 \times 22 \times 42} = 1254 \text{ r.p.m. of spindle.}$$

on the excess speed we have:

$$\frac{400 \times 42 \times 63 \times 46}{42 \times 42 \times 22} = 1254 \text{ r.p.m. of bobbin.}$$

The idlers in the compound should be considered as carriers.

So, it can be seen that the value of the train in both the standard and excess speeds give the same speed to both the spindle and bobbin when the sun gear is stationary, or when the bottom cone is raised.

Now, with this in mind, let us go back and see who is right. Let us assume that we make a change of three teeth in the gear on the driving shaft driving the spindles, and we have:

$$\frac{400 \times 63 \times 46}{40 \times 22} = 1317 \text{ r.p.m. of spindle.}$$

So we are out of step with the excess speed. In other words, the flyer revolves 63 turns more than the bobbin, which would create a mess and tangle the ends.

Therefore, when "R. H. (GA.)" states, on page 84 the March, 1934, issue, in answer to "S. I. C.'s" question as to whether it is practical to speed up fly frames in this manner, I would say No, and he is right, but when he states in the preceding paragraph, "I would put on a 20-tooth bottom cone gear and adjust the position of the belt on the cones so that the ends would start at the proper tension," he is wrong.

In the bobbin-lead system, if the gearing for both the standard and excess speed is right so that at doffing time when you raise the bottom cone, and the spindle and bobbin revolve at the same speed, it is impossible for the flyer to revolve faster than the bobbin. I had my mind so centered on this universally accepted theory in the bobbin-lead system, that in answering "S. I. C.'s" question I overlooked the principel of having equal speed at doffing time. Therefore, you can change the bottom cone gear or the position of the cone belt, or even the compound pinion, but this will not bring the equal speeds necessary at doffing time, and this is what I carelessly overlooked when answering the question.

"S. I. C." claims he had failed to make the fly frame run two changes even when he had doubled the 18-tooth gear, so, like "R. H.", he is wrong, for a change in the bottom cone gear is useless.

In my answer it can be seen that I had in mind only the speed of the spindle and front roll. Had I added the foregoing reasoning to my answer, my figures would be correct. "K. C. (CONN.)", a good practical man for many years, made the same mistake, and answered the question from the same slant, and of course, was wrong, and I am wrong also to let such a simple thing escape my mind.

Next, "CONTRIBUTOR NO. 6569" states, on page 99 (January, 1937), "unless there is enough room to move the cone belt toward the smaller end of the bottom cone, the cone gear will have to be changed just as if a bobbin being run were changed to a bobbin of a smaller diameter." So you see that "CONTRIBUTOR NO. 6569" is wrong too, and everyone that has taken part in the discussion is wrong, simply because all of us never considered the minus excess speed at doffing time, and I know that all will agree that a change in the bottom cone gear will make no difference.

So, in summing up the whole matter, for the first time in 24 years, I am proven wrong, by a contributor that is also wrong. Now, please turn to page 91 of the June, 1934, issue of COTTON, where we find I state, in

the first paragraph of my article, "Of all the articles I have read in this department for over 20 years, the one entitled 'A Discussion of 'S. I. C.'s' Fly Frame Problem,' appearing on page 82 of the March issue and written by 'R. H. (GA.)' is the height of something or another." Please let me address "R. H." directly, for I want to beg his pardon for that remark and ask him to please accept my most abject apology.

Next, on page 98, "CONTRIBUTOR NO. 6569" states: "If the rolls are at the proper setting to begin with, and he admits they were, are they properly set when he moves them in either direction, as he states he does in order to create the slight change desired in the web?"

I stated, "Now, when the reader has a little time, let him set the second line of rolls on any drawing frame ⅛-inch over the proper setting; in other words, set the second roll ⅛-inch away from the first line. Next, run the frame, and it will be found that the web will be slacker; next, move the second line ¼-inch closer and start the frame again, and it will be found that the slackness will disappear, and, instead, there will be a tension on the web."

The foregoing was only given as a test, to prove the amount of friction that exists between the drawing rolls, whether metallic or common, and that it is more practical to have defective roll setting where the space is a little over an inch, than to have the wrong tension on the web from the drawing rolls to the calender rolls, which amounts to several inches, and any slight defect in the web amounts to several inches of defective work, owing to the distance between the drawing rolls.

Please be reminded that the foregoing was given for running strips, waste or colored work. If "CONTRIBUTOR NO. 6569" were a practical man he would have understood. However, I ask the boys to make the test given, especially when the train of gears from the front roll to the calenders is of a coarse pitch. Should you change the calender pinion and find that the webs are running too tight, try a trumpet with a smaller bore; or, spread the second line ⅛-inch; or, if the webs are too slack, vice versa. By so doing you overcome a part of the coarse pitch tooth, by increasing or decreasing the friction between the drawing rolls or trumpet.

I would have the boys try my experiences of running strips, waste or colored work, and they will find the pointers given very valuable. That has been my method for over 40 years, and was successful, and I ran some pretty poor stock.

What "CONTRIBUTOR NO. 6569" states about the slippage of the cone belt, on page 98, is explained by me on page 99 of the September, 1936, issue of the magazine.

On page 98 "CONTRIBUTOR NO. 6569", after commenting on my explanation of the stock collecting on the top side of the automatic feed box, states, "Can anyone imagine a perfect draft through any picker with a beater wrapped or clogged in this manner, creating a fan of its own, blowing the stock to one side?"

Concentrate on this and you will agree that "CONTRIBUTOR NO. 6569" is either a college or textile school graduate. Never mind about his telling us that he is at present taking up a textile course; he shows himself up as a theoretical man, for a practical man knows that the stock is drawn up to the opening at the top of the beater, and no matter how much the beater creates a fan of its own, this would not affect the direction of the stock, and, again, a clogged beater would not beat the stock and allow all of the stock to pass to the upper opening.

So here is where "CONTRIBUTOR NO. 6569" spoils his article, for I stated, "Some of the oil will find its way to the upper end of the conical beater shaft (not the beater) and a lot of stuff will collect where the stock enters the beater box."

So "CONTRIBUTOR NO. 6569" is wrong when he claims that the threads collected on the beater created a fan of its own and blew the stock to one side. To prove him wrong, I will try and picture the happenings of that day.

It all happened in a Rhode Island mill in the year 1927. I was called to the picker room and the picker boss informed me that the laps from the breaker were uneven and that he could not locate the trouble. At a glance I saw that all of the laps from the breaker picker were much larger on one end than on the other, so I immediately closed the draft chambers on the side where the lap diameter was larger and opened the other side.

No matter what we did, the stock was heavier on one side of the picker. Not being able to find or correct the trouble by changing the air currents, I obtained a box to stand on so I could see where the stock entered from the automatic box. Directly I could see that the stock was driven to one side by some unknown agent, so I ordered the picker stopped. Of course, when we examined the whole beater box and beater we found threads collected on the top shaft of the beater. The threads were clustered and about two feet in length, which swept the stock to one side just as the stock entered the chamber to the beater, and of course the air currents being equal through the breaker, more stock remained on the side of the breaker, receiving the stock from the sweep at the back. It was some time before we discovered the trouble, for I had never experienced anything like it before; so that is why I put the question to the readers, to save a little unnecessary work and worry for them if they should by chance run up against the same experience.

From the foregoing, the readers can now understand why I put so many questions to them. It is not to prove how smart I am or how much I know. Getting credit is like the water that flows from a duck's back, and I know and realize that at my age success consists not so much in getting the praise of others as it does in securing the approval of one's innermost self. Instead, my aim is to create a discussion and find the real answers and remedy by giving my own experience and affording all of the contributors the same opportunity, which I am sure works out to our mutual benefit.

Now, let us consider if this man is fair minded. On page 98 he states, " 'WASH' has often made the statement that there is a great deal of difference between method and problem. Yes, there is a difference in the problems he gave us and the only method of

solving them is his method."

You can see that "CONTRIBUTOR No. 6569" would have you believe that I have inherited personal egoism and that of course means that I am also narrow minded. If "CONTRIBUTOR No. 6569" answers this article, I insist that he do some more rambling and find where I make the statement "There is a great deal of difference between method and problem" other than on page 82 of the January, 1935, issue of COTTON. If unable to do so, an apology is in order.

Not only is "CONTRIBUTOR No. 6569" unfair, and also wrong, when he claims that I made the statement often, but you will find on this same page where I refused to give my method in order to save space, and referred the reader to other methods that had appeared in previous issues of COTTON. The man in question was seeking a new method of finding where the cone belt should be for a certain diameter bobbin, and gives four bobbin diameters.

Now I should like to ask "CONTRIBUTOR No. 6569" if he can find the true hyperbola curve by dividing the cones in only four parts, and if such a method should be employed to find the proper outlines for intermediate speeds, for that is the question? What about the pressure of all paddles? Should this factor be considered? Should not each layer added on a bobbin be considered separately, and the diameters of the cones figured for that layer alone? Therefore, what good is the answer to the question when the factors given are considered?

"Actual Bobbin Revolutions Obtained"

There are many more factors to consider. To "CONTRIBUTOR No. 6569" I want to say, in all seriousness, here is your opportunity to give the boys much valuable information, information that will help them to a better understanding and operation of fly frames, and allow me to point out to "CONTRIBUTOR No. 6569" that unless one is doing some sort of service to somebody, he is not doing his part in the world, and sooner or later, is bound to suffer the law of compensation.

If the contributor answers this article I want him to tell us what is meant when the cone outlines are spoken of as "actual bobbin revolutions obtained." He brought up the subject, now let him explain to the boys the difference between method and problem. Is the first classed as a method and the second a problem?

Now, if "CONTRIBUTOR No. 6569" will agree, let him take this opportunity to figure both, and by so doing, I will not be accused of solving them only by my own method.

First, give us the method outlined in the question, and, next, using the same dimensions of the cones, show us how you obtain the "actual bobbin revolutions". You will find the latter a problem, and it will be very different. However, you tell the boys.

We now come to page 99, and here, he would have you believe that I have boasted in the past, but his reason is a feeble one. Boast means magnify one's self. Next, he states, on page 99, "but if he will open his mind and admit that some of the rest of the fellows can be right sometimes, even if it be a textile graduate, he would fare better."

WE invite our readers to make use of this department for the discussion of any and all problems arising in the mill or finishing plant. Questions, answers or letters need not conform to any particular style and will be properly edited before publishing. The editors do not hold themselves responsible for any statement of opinion or fact which may appear in this department unless so endorsed. This department is open to all.

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How few think justly
Of the thinking few?
How many never think,
Who think they do?

As I understand it, a person with an open mind will weigh the good and bad in a person, or, anything, for that matter, but here is a man who rambles through the back copies of COTTON and finds where I am all wet in my past articles. And, in all these years, he fails to find a single article in my favor or to my credit. If that is what is termed an open mind, then I want none of it. However, I would rather be narrow minded than selfish.

In closing, he states "When 'WASH' gives his answer to this, I would like for him to give facts, and no catch problems, such as: One revolution of the compound will wind three inches of roving while the frame is stopped, how many will it wind while the frame is running?"

"CONTRIBUTOR No. 6569" will admit that I have answered his article in full, first, by giving facts, and, second, no catch problems. When he answers this article I hope he will open his mind also, for he has plenty of room. When he accepted the foregoing as a problem, it was a confession on his part that he is far from being a practical man. However, I never made any such statement. The question was, "If one revolution of the differential sleeve will wind three inches of roving when the driving shaft is stopped, how many inches will be wound if the differential sleeve makes one revolution when the driving shaft is up to speed?"

To any practical man, this is no catch problem, for their experience in winding the bottom cone so often by hand leads them to know that the amount is no different, whether the jack-shaft is running or is stopped.

I put the question to prove that the standard speed inserted twist only, and whether the driving shaft was running or stopped, the same length of roving is wound on the bobbin minus the contractions of twist.

In conclusion, he states, "I have tried other men's ideas (not 'WASH'S'), studied books of many kinds on mill work and am now taking a textile course trying to learn more about my work all the time." Atta boy! Stick to it, and you will soon learn the difference between method and problem.

WASH (R. I.)

If you have saved all of your 1937 issues of COTTON, we have a Cross-Index for you. See page 43 for complete information.

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Here is presented an important service used every month by hundreds of COTTON readers. The listings explain themselves. The Manuals, Reference Books and Catalogs, containing information of unusual value in mill construction and operation, will be sent you without obligation. Read through the list carefully. Then simply fill in on the coupon the number of those which interest you, and mail it to COTTON.

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205. The Walker Method—8 page illustrated catalog describing the Walker method of quickly checking the efficiency of machinery. This improved method eliminates the losses resulting from improperly adjusted equipment. Walker Electrical Company, 926 Means St., Atlanta, Ga.

213. Saco-Lowell Cotton Machinery—Twisting—a 36 page illustrated brochure explaining the company's twisters and parts, including the four basic type twisters, features of new construction and general notes on twisting. Production calculations and specifications are included. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

214. Saco-Lowell Cotton Machinery—Spinning—the second edition of a 56-page booklet, illustrated with the company's product and containing valuable charts, production tables and other spinning data. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

216. Cutting Costs with Liquid Caustic Soda—a 72 page hand book packed full of useful information on liquid caustic soda, including unloading and handling properties of caustic soda and its equeous solutions, sampling and analysis. Of practical value to executives, buyers, chemists and operating men. Sent without obligation by writing on your business letterhead to the Mathieson Alkali Works, 60 East 42nd St., New York, N. Y.

217. Diamond Fibre Hollow Ware—32 page booklet and catalog, attractively illustrated, showing various types of boxes, trucks, cans, barrels, baskets and trays of Diamond Fibre Hollow Ware. Of interest to every mill man in solving material handling problems. Free on request. Continental-Diamond Fibre Co., Dept. C, Wilmington, Delaware.

218. Butterworth Electric Guiders—6-page folder describing and illustrating the new Butterworth Electric Cloth Guider. This guider is built on the same principle as the Foxwell Air Guider and is unexcelled for fast, accurate guiding. H. W. Butterworth & Sons Co., Philadelphia, Pa.

219. My Strap-Book by Doc Steelstrap—16 page illustrated catalog describing the hundreds of ways that Acme steel strap can be used to advantage in connection with paper boxes and wraps in making safe, economical shipping boxes. The strap-book will convince you that Doc Steelstrap and his assistants do a thorough job of the packing and shipping business. Acme Steel Co., Chicago, Ill.

222. Onyx Processing and Finishing Compounds"—A new 56 page catalog describing the entire line of processing and finishing compounds and covering every process on all types of fabrics. Also included is a comprehensive article on the subject, "The Importance of Accurate pH Control." Onyx Oil and Chemical Company, 15 Exchange Place, Jersey City, New Jersey.

223. Alloyed Iron in Southern Industrial Fields—16 page illustrated catalog dealing with the properties available in modern cast irons. International Nickel Co., 67 Wall St., New York, N. Y.

224. "Tank Talk"—Sixteen page booklet of illustrations showing various types of elevated steel tanks, constructed and erected by manufacturers as well as stand pipes, reservoirs, storage and high pressure vessels, cylinders, along with helpful technical data. Also a list of what a few of the cotton mills, etc., said. R. D. Cole Manufacturing Company, Newnan, Georgia.

227. Stainless Steel Valves and Pipe Fittings—complete illustrated catalog, together with price list, covering stainless steel valves and pipe fittings, giving all dimensions, data, etc. The Cooper Alloy Foundry Co., 150 Broadway, Elizabeth, N. J.

228. Solutions for Your Problems—20-page illustrated booklet containing valuable information on the scouring and processing of wool and other fibres. Detergent Products Corp., Atlanta, Ga.

231. Spindle Tape Lacing Equipment — Illustrated folder describing the new Clipper spinning tape lacing equipment, gives vibration chart, prices, specifications and other valuable information. Clipper Belt Lacer Co., Grand Rapids, Mich.

232. Condenser Tape Lacing Equipment—Describing in detail the new Clipper condenser tape lacing equipment, this folder contains table of decimal equivalents, prices, specifications and illustrations of the lacer, hooks and cutter. Clipper Belt Lacer Co., Grand Rapids, Mich.

233. Catalog No. 22—an attractive illustrated catalog describing in detail the Shamrock shipping containers and the new canvas trucks for textile use. Meese, Inc., Madison, Ind.

234. They Stay Brighter Longer—This interesting illustrated booklet containing facts about Mazda lamps will be sent you free on request. General Electric Company, Dept. 166, Nela Park, Cleveland, Ohio.

235. The Guide—a ready reference book which will prove of great help to textile mill engineers in selecting Valves, Bodies Mountings and Lubricating Devices. Products are grouped by pressure, type and use. The Lunkenheimer Co., Cincinnati, Ohio.

236. Lunkenheimer Catalog—describing and listing the entire Lunkenheimer line of Valves, Water Columns, Water Gauges, Gauge Cocks, Fittings, Unions, Air Nozzles, Lubricators, Oil and Grease Cups, etc. The Lunkenheimer Co., Cincinnati, Ohio.

238. Glorified Light—A 32-page book illustrative of the vital part proper painting plays in scientific lighting and in the reduction of maintenance and production costs. Pittsburgh Plate Glass Co., Pittsburgh, Pa.

240. The New Proctor Automatic Yarn Dryer—6 page illustrated folder describing the new Proctor automatic yarn dryer which has the exclusive new Proctor traveling skein protector. Proctor & Schwartz, Inc., Philadelphia, Pa.

241. Handbook of Building Maintenance—38 page illustrated booklet which is a ready reference for men responsible for the maintenance of textile buildings and structures. Should be on file in engineer's office. Flexrock Co., Philadelphia, Pa.

244. Turbine Pumps—as used for irrigation and all municipal and industrial purposes. A forty-page illustrated and descriptive bulletin furnished free by Pomona Pump Co., Pomona, Calif., or 4301-7 So. Spring Ave., St. Louis, Mo.

245. Design Wheels for Brinton Knitting Machines—16 page illustrated booklet which gives helpful information on design wheels for Brinton knitting machines. A copy of this booklet should be in the hands of every knitter. H. Brinton Co., Philadelphia, Pa.

246. Randall Pillow Blocks—A convenient 24 page pocket size catalog giving detailed information on types, sizes, uses, construction and prices. Randall Graphite Products Corporation, Chicago, Ill.

247. Randall Graphite Bronze Bearings—a handy 24 page pocket size catalog listing the complete range of Randall bushings. The inside diameter is thumb indexed for convenience. Randall Graphite Products Corporation, Chicago, Ill.

249. Wood Decay—its Causes and Prevention—4 page illustrated folder describing the causes of wood decay and methods of prevention. Reilly Tar & Chemical Corporation, Indianapolis, Ind.

250. Termites—This valuable booklet which deals with the destructiveness of the termite and the methods of extermination should be in the hands of every textile mill man. Reilly Tar & Chemical Corporation, Indianapolis, Ind.

251. Brown Thermometers and Pressure Gauges—New 71 page book illustrating and describing the Brown indicating, recording and controlling thermometers and gauges. Explaining their many advantages to the textile plant, this valuable book should be in the possession of every mill executive and department head. The Brown Instrument Co., Philadelphia, Pa.

253. Brown Air-O-Line Controllers—This booklet will prove invaluable to the men in charge of dyeing, finishing and slashing, as well as the textile executive. 32 illustrated pages describing the various Brown Controllers. The Brown Instrument Co., Philadelphia, Pa.

254. Fade-Ometer—A laboratory testing device for determining the color fastness or fastness to light of dyes and dyed textiles. Fully described in a 12-page bulletin containing complete color test data. Atlas Electric Devices Co., 387 West Superior St., Chicago, Ill.

255. Launder-Ometer—A laboratory testing device for determining fading, shrinking, staining and mechanical action of dyed textiles due to laundering, also detergent tests, dry cleaning tests, vat and sulphur dye tests. Completely described in 16-page bulletin. Atlas Electric Devices Company, Chicago, Illinois.

256. Self-Cleaning Textile Motors—4 page illustrated folder describing the pioneer Self-Cleaning Textile Motor designed exclusively for the Textile industry. The Louis Allis Company, Milwaukee, Wisconsin.

257. Loom Motors—This 4-page folder describes the Louis Allis Loom Motor, which is designed and built from the ground up as a sturdy, smooth, powerful motor necessary for successful performance with modern high-speed looms. The Louis Allis Company, Milwaukee, Wisc.

258. Automatic Overhead Cleaner for Spinning, Winding, Warping and Twisting — 24 page booklet showing the new American MonoRail Automatic Cleaner in operation on MonoRail track circuit over Spinning, Warping, Winding, Twisting, etc. This cleaner incorporates a new scientifically designed blower producing a whirling column of air directed and controlled so that it prevents accumulation of fly with no harm to roving. The American MonoRail Company, Cleveland, Ohio.

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273. Debevoise Maintenance Paints—38-page illustrated manual describing and illustrating the Debevoise line of paints for industrial use. The manual features a complete line of paints for the interior and exterior of textile plants and mill villages. The Debevoise Company, 968 Grand St., Brooklyn, N. Y.

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276. Continuous Vulcanization of Transmission Belting—12-page booklet containing facts based on data assembled during the development of this new principle of belt manufacture and the performance of the product in actual service. Boston Woven Hose & Rubber Co., Cambridge, Mass.

277. Bulldog Rubber Tension Roll Covering—attractive four-page folder describing the new scientifically correct product designed for taking off all synthetic fabrics, natural silks and fine cotton goods. Boston Woven Hose & Rubber Company, Cambridge, Mass.

278. Textile Testing Laboratories—a 16-page illustrated booklet describing a modern textile testing laboratory and pointing out the necessity for laboratory air conditioning systems. Ask for bull-tin 136. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, North Carolina.

279. When Cleaning's Automatic, a Spinne's Free to Spin—a 16-page illustrated booklet dealing with the Parks automatic traveling cleaner. Ask for bulletin 1036. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

280. Why do they open Windows—a 16-page illustrated booklet which deals with the Parks automatic airchanger—a patented combination of forced air change and direct humidification in balance—all under control of automatic humidity regulators. Ask for bulletin 637. Parks-Cramer Co., Fitchburg, Mass., and Charlotte, N. C.

281. Sealed—Showing how dirt and dust shorten life and destroy accuracy of bearings and importance of sealed bearings to keep dirt out and to keep lubricants in. New Departure Division, General Motors Corp., Bristol, Conn.

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30. Lubrication of Textile Machinery—32 pages illustrated. Data covering the economical lubrication of all textile machines. New York & New Jersey Lubricant Co., 292 Madison Ave., New York, N. Y.

38. Sleaziness in Full Fashioned Knitting—Illustrated survey with samples of fabric showing causes of sleaziness and methods to be employed in eliminating it.—By Textile Machine Works, Reading, Pa. (This company also issues parts catalog for Reading full fashioned machines with general information on subject of full fashioned knitting.)

55. Interpretation of Analysis for the Layman—An eight page booklet explaining what the various items used in fatty oil and sulfonated oil analysis mean, enabling the ordinary textile man without chemical education to interpret the various chemical analyses. National Oil Products Co., Harrison, N. J.

62. Rubber Products for the Textile Industry—A 40 page booklet giving a wealth of information on the proper selection, installation and operation of rubber belts, together with charts, showing horsepower rating, pulley sizes, V-belt sizes, also information on all types of hose and rubber covered rolls used in the textile industry. Manhatta Rubber Mfg. Division of Raybestos-Manhattan, Inc., Passaic, N. J.

64. SKF in the Cotton Mills—A twelve page book-

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HELPFUL BOOKLETS FREE...

Continued from Page 107

let showing the advantages in power consumption, increased production, savings in lubrication, increased yarn breakage strength to be secured through roller bearing spindles. SKF Industries, Inc., Front St. and Erie Ave., Philadelphia, Pa.

65. Bulletin No. 500. Cooper-Hewitt Industrial Illumination—booklet explaining in detail the importance of good lighting and the necessity of proper quality as well as proper quantity of light. General Electric Vapor Lamp Co., Hoboken, N. J.

70. Fafnir Ball Bearings for One Process Pickers—outlining the advantages of ball bearings in guaranteeing smooth, accurate motion, particularly on evenders, as well as uninterrupted production, ease of operation and cleanliness of bearing units throughout the one-process pickers. Fafnir Bearing Company, New Britain, Conn.

72. The Merrow Butted Seam—A 16-page booklet defining and illustrating the Butted seam, describing its properties and outlining some of the advantages to be gained by its use in Textile fabrics. The Merrow Machine Co., Hartford, Conn.

77. Bulletin S 200—Illustrating and describing the new Reeves Variable Speed Drive for spinning and twister frames, explaining its many distinct advantages and giving charted results of exacting tests. Reeves Pulley Company, Columbus, Indiana.

88. Dayton Cog Belt Catalog—A 32 page booklet full of vital information on power drives, plainly and simply assembled and arranged so that anyone can select the proper standard drive for any condition. It also provides data for the calculation of drives where acquired. The Dayton Rubber Mfg. Co., Dept. C-11, Dayton, Ohio.

94. New Development by Onyx—Eight page booklet describing and giving uses of new developments in sulphonated aliphatic compounds . . . called Aliphatic Ester Sulphate and Glyceryl Sulphates. Onyx Oil & Chemical Co., 15 Exchange Place, Jersey City, N. J.

106. Cotton System Warp Sizing on Multiple Cylinder Machines—a folder showing the advantages of this type of machine in making warps of acetate and other synthetic yarns and spun silk. Charles B. Johnson, Paterson, N. J.

107. Complete Information on Alemite Lubrication—Showing how costs can be reduced through proper lubrication. Alemite Corp., 1828 Diversey Blvd., Chicago, Ill.

109. Some Properties of Starch and Dextrine—Explaining certain fundamental properties of starch and its derivatives and their action when heated and agitated. Stein, Hall & Co., 285 Madison Ave., New York City, N. Y.

110. 3-In-One Oil for Industrial Uses—showing the many industrial uses and advantages of this oil. A. S. Boyle Co., 1934 Dana St., Cincinnati, Ohio.

116. Arcy—Telling in an interesting way the story of Arcy, which completely liquefies ordinary thick boiling pearl starch, and its many advantages. Drake Corporation, Norfolk, Va.

117. Anti-Friction Bearings as Applied to Spinning, Drawing and Twisting Frames—This bulletin shows with detailed drawings how a simplified design of roller bearing applications is made to replace the plain babbitt bearings and lists the advantages that are gained. It deals primarily with better continuous production and in consequence freedom from equipment care and repairs. Hyatt Roller Bearing Co., P. O. Box 476, Newark, N. J.

119. The World's Finest Sewing Machines—a condensed catalog giving details of the various Willcox & Gibbs sewing machine. Willcox & Gibbs Sewing Machine Co., 658 Broadway, New York, N. Y.

120. Goodyear Mechanical Rubber Goods Catalog—40 page catalog giving practical information and tables helpful in the selection of the proper belting, hose or packing to suit the requirements of the mill. Goodyear Tire & Rubber Co., Akron, Ohio.

121. Engineered Packages for the Textile, Dry-Goods and Apparel Industries—Showing the savings to be made through the use of properly engineered packages of corrugated fibre in the shipping of yarn, woven and knitted products. Hinde & Dauch Paper Co., Sandusky, Ohio.

122. Water Filters and Filtration Equipment—Containing complete description of the chemical processes involved in the coagulation and precipitation of foreign matter, the removal of iron, oil, manganese, from water and the production of clean water suitable for the textile industry, together with tables of specifications for standard filers, and information showing the extra profits to be made by the mill through reduction in costs and process difficulties, through removal of undesirable impurities in water. Permutit Company, 330 W. 42nd St., New York, New York.

128. Houghton's Hand Book for the Hosiery Dyer—This book contains the result of 69 years of experience in research and development of processing materials for the textile industries, together with a wealth of other data useful to every hosiery dyer. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

130. Three New Textile Scouring Agents—This 32-page book gives many valuable formulas for the use of Houghton's Wonder Powder—a new type of colloidal detergent—in fulling, scouring and finishing nearly all types of woven and knit goods. Also contains several pages of valuable reference and conversion tables. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

134. STA-PUT Lubricants—A brief description of an entirely new line of tough film lubricants which not only gives greater protection to bearings but eliminates oil drip and reduces lubrication costs. STA-PUT Lubricants are made in grades to suit all types of textile machinery. E. F. Houghton & Co., 240 W. Somerset St., Philadelphia, Pa.

139. Textile Detergents—Theory of the use of alkalis and control of pH—This 32 page booklet explains in simplified manner for the benefit of the layman the chemical processes that take place in using textile detergent in the finishing of textile goods. It contains many useful tables and data. Detergent Products Corp., Peachtree Bldg., Atlanta, Ga.

141. V-Belt Engineering Data Book—Over 50 pages of pertinent engineering information including data on selecting a V-belt drive design of special V-belt drives, numerous standard tables, charts and belt and sheaves list prices. Manhattan Rubber Manufacturing Div. of Raybestos-Manhattan, Inc., Passaic, N. J.

152. Plant Checkup List—Crane Co., 836 South Michigan Ave., Chicago, Ill.

154. Johnson Bronze Bulletin No. 340—showing over 600 sizes Johnson general purpose bronze bushings. Johnson Bronze Co., New Castle, Pa.

155. Link-Belt Catalog 1574 on the P. I. V. Gear—giving details of this positive variable speed control. Link-Belt Co., 307 N. Michigan Ave., Chicago, Illinois.

156. Link-Belt Engineering Data Book No. 125—showing features and giving engineering data on Link-Belt silent chain drive. Link-Belt Co., 307 N. Michigan Ave., Chicago, Ill.

157. Grading Rules and Complete Specifications for Laying and Finishing Maple Floors—Maple Flooring Manufacturers Association, 1794 McCormick Bldg., Chicago, Ill.

163. Roto-Koner—Bulletin describing the new No. 44 Universal Winder, known as the Roto-Koner for winding knitting yarns, which has many new and distinctive features. Universal Winding Company, 95 South St., Boston, Mass.

164. Johnson Rotary Pressure Joints—Bulletin describing the rotary pressure joint which requires no packing, no lubrication and no adjustment, giving installation and maintenance instructions, types, sizes, dimensions and prices. The Johnson Corp., Three Rivers, Mich.

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180. These Extra Cushion Cork Cots Offer Six New Advantages—a 6-page folder which tells the story of the new Armstrong Extra Cushion Seamless Cork Cot from the viewpoint of the mill man. The folder describes HOW the new cot is of advantage to mills spinning cotton yarn; WHY it is better, and something about the method of manufacture, and also gives PROOF in the form of some tests that have been made with this new roll covering material. Armstrong Cork Products Co., Textile Division, 960 Arch St., Lancaster, Pa.

183. Schieren-izing—describing leather belt manufacture from the selection of hides through the various processes to the final tests, also showing illustrations of belts with unusually long service lives. Chas. A. Schieren Co., 31 Ferry St., New York, New York.

184. Speed Control Handbook T-35—new reference book on variable speed control, said to be the most complete and helpful book on this subject ever published, 112 pages and more than 200 illustrations of interest to every production executive, purchasing agent, superintendent, overseer and master mechanic. Reeves Pulley Co., Columbus, Ind.

185. Dulux—The White Finish That Stays White—New book describing the new ten-point finish for factory walls and ceilings, the finish that stays whiter, stays cleaner and stands repeated washings. E I duPont de Nemours & Co., Finishes Division, Wilmington, Del.

186. F-7 Feeder Bulletin — Describing the better blending that is secured and the important cleaning operation that is added by using F-7 feeders in place of bale breakers. Saco-Lowell Shops, 147 Milk St., Boston, Mass.

187. The Wildman Single-Head Full-Fashioned Hosiery Machine—Literature on request from the Wildman Mfg. Co., Full Fashioned Division, Norristown, Pa.

188. Form 374—This form enables you to gather your own cost data on your sewing machines and determine whether new Union Special Machines will show big savings. Furnished free by Union Special Machine Co., 400 No. Franklin St., Chicago, Ill.

190. Warp Conditioning Units for Synthetic Yarn Slasher—booklet giving full details will be sent free to mill men who write on their company letterhead. Chas. B. Johnson Co., Paterson, N. J.

191. The Bahnson Humidifier—bulletin describing Bahnson Humiduct system which combines humidifying, heating, ventilating and air conditioning all in one unit, will be sent free on request. The Bahnson Co., Winston-Salem, N. C.

192. Wood Tanks for Every Purpose—100 page illustrated catalog showing the advantages and lasting qualities of wooden tanks. Rubber-lined tanks for dyeing and other uses in the mill are illustrated and discussed in detail. Hauser-Stander Tank Co., Ammen Ave. and Spring Grove Ave., Cincinnati, Ohio.

197. Extra Life for Chain Link Fence—A folder telling about Bethanized Wire and explaining its advantages for mill and factory protection. Anchor Post Fence Co., Eastern Ave. and Kane St., Baltimore, Md.

198. The Perfect Loom Let-Off—Folder pointing out the advantages of the new asbestos friction loom let-off and giving specifications and price list. Fiber Mfg. Co., Newton, N. C.

COTTON, Grant Bldg., Atlanta, Ga.

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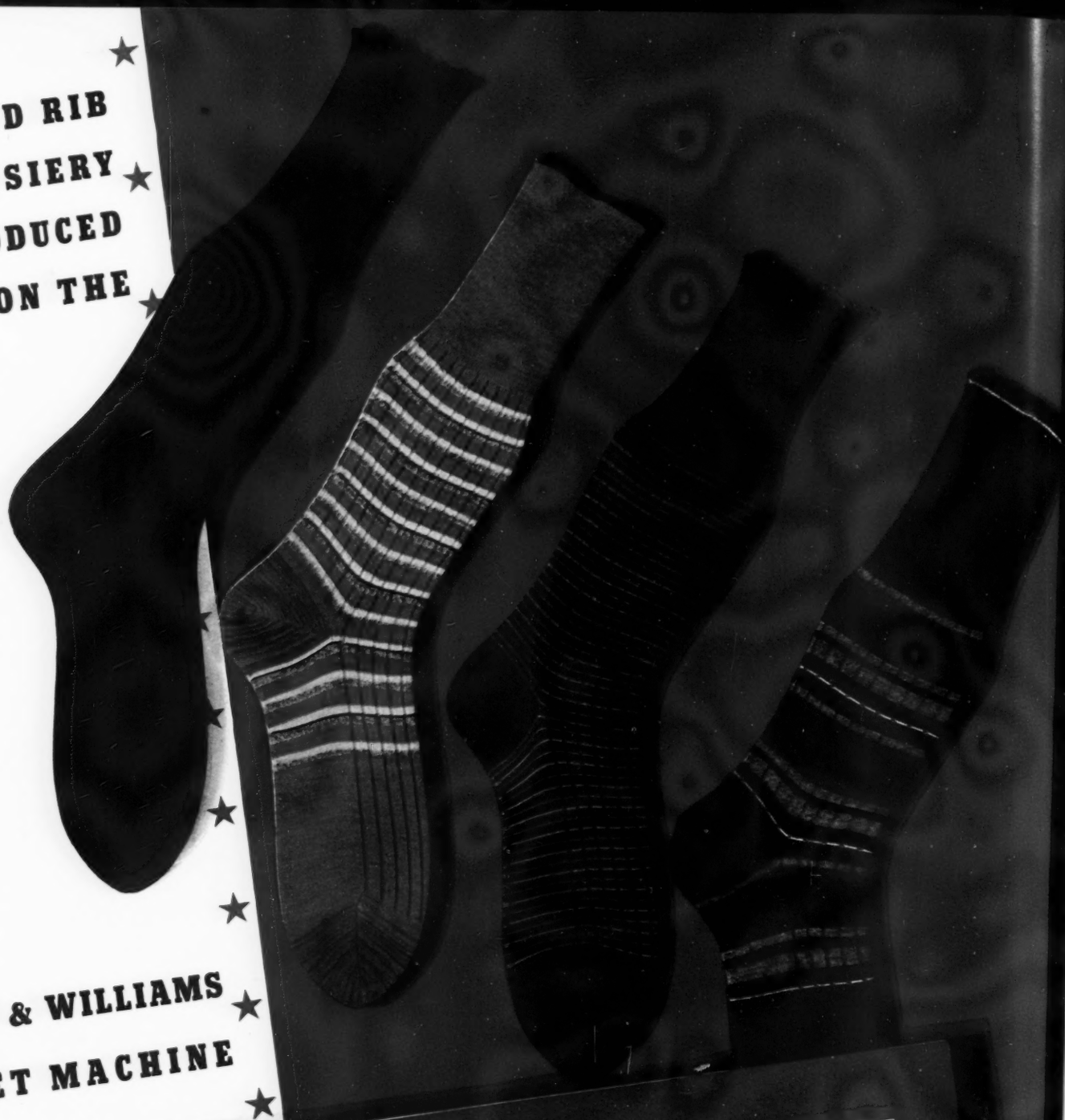

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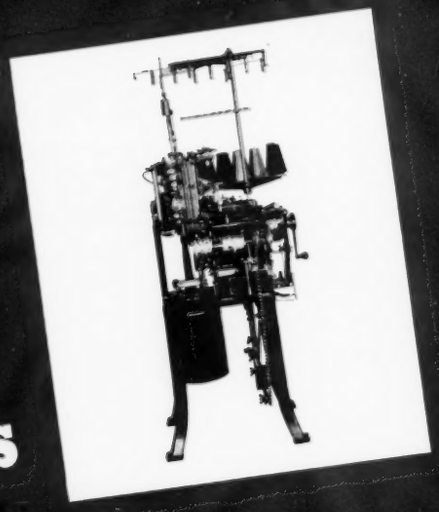

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KNITTING SECTION

The Maintenance and Fixing of Full-Fashioned Hosiery Machines

THIS is the sixth installment of a series of articles on full-fashioned machine maintenance, being prepared especially for COTTON by a competent mill man. The first installment appeared on page 103 of the July issue, the second on page 117 of the August issue, the third on page 119 of the September issue, the fourth on page 113 of the November issue, and the fifth on page 131 of the December issue. Thus far the vertical motion of the needles, the horizontal motion of the needles, the function of the regulator, the formation of stitches, and sinker head and knock-over bar analysis have been discussed. This installment is devoted to a study of the jack head and slur cams, their analysis and adjustment. The author will take up any particular phase of fixing you may request.—The Editors.

By Arthur J. Cobert

Jack Head and Slur Cam Analysis and Adjustments

FOLLOWING the article in the December issue of COTTON on the construction of sinker heads, we will discuss the composition of jack heads and slur cams as these parts follow in direct relation to the sinker heads.

The jack head is fastened to a rail or bed by means of two screws which hold it securely in place. The holes in the rail through which these screws pass are purposely made over-size to permit adjustment of the head to either side, or in and out. No attempt should ever be made to make an adjustment without first opening one or both of these screws.

The amount of adjustment in or out is controlled by two set screws that are mounted in the lugs found on the rear of the jack head. These set screws merely rest against the rail and are not fastened to it in any way. Consequently, turning the set screws in, or to the right, will change the position of the head, while turning them out, or to the left, will not alter the position unless the head is tapped in with a hammer to bring the screws in contact with the rail again.

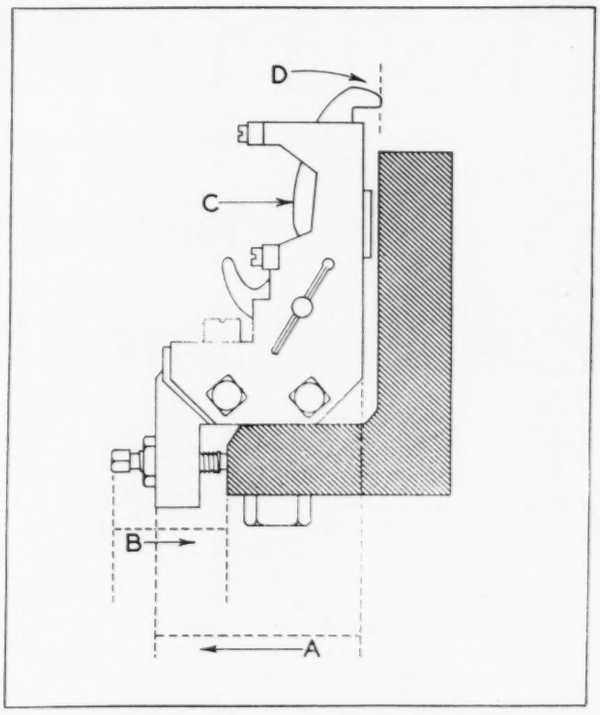
In analyzing the motion of the jacks, it is well to study their relative movement between the slurcock and the sinkers. First of all, it will be found upon inspection that the pivot or center upon which the jack swings is much below the striking point of the slur cam. This produces a leverage upon which the adjustment of the jack head depends. If it is desired to throw the jacks farther in, or closer to the verge plate, it will be necessary to bring the bottom of the head in the opposite direction. This is accomplished by turning the set screw in the jack head lug to the right, which draws the head back at the bottom. A reverse adjustment has the opposite effect at the striking point of the jacks, except as before stated, the head must be tapped in to make the necessary change.

When a jack head is adjusted properly the first time in setting up a machine, the retainer bolts should come in the center of the holes through which they pass in the rail so that future adjustments can be made from this setting in any direction. All machines have a standard gauge for this purpose which will bring the setting correct, providing the sinker heads and verge plates are in the proper place. The usual type of gauge slides along the slur bar and comes in contact with the jacks at the point where the slur cam strikes. In using this gauge, slide it in from each side of the jack head, and by feel adjust the head in or out so as to make the gauge fit perfectly without any play and without raising it when it comes in contact with the first jack. If the gauge fits too loose, the set screw in the lug will have to be turned in, drawing the head back. If too tight, which will raise the point of the gauge, the set screw will have to be turned to the left and the head tapped in, and this operation repeated until the proper setting has been reached.

It is not necessary to gauge the head all the way across, merely a small distance in from both sides will be sufficient. After this setting is completed the head may be centered between the divider tails by sight, tapping it to one side or the other, taking care not to move the head away from the set screws in doing so. The head may then be securely fastened in place by the retainer bolts, always trying the gauge afterwards to make certain that the head has not moved in any direction during the tightening process. The best way to make an adjustment on the jack head is to have the retainer bolts finger tight to start with. This permits any adjustment necessary and insures the head laying flat on the rail, which otherwise might throw it off gauge when the screws are tightened.

In erecting a machine all jack heads are to be set uniform on both sides with the gauge. After the fabric is started, it will be necessary to move some of them on one side to make the section knit uniformly. Now, if a section is knitting tight on one side and the play between the sinker butts and verge plate on that side permit taking up some of it, the jack head must be moved to gain uniformity. Loosen the retainer bolt on the side in question and turn the set screw to the right until the desired amount of play is removed from the sinkers. Re-tighten the retainer bolt and continue knitting so as to observe the result of the adjustment. The amount of play to remove or add must be learned by practice. Reverse the process if the section knits loose on one side.

Care must be taken in both instances not to remove all the play and not to have too much play in the sinkers. Maximum play should not be more than the thickness of two dividers of the gauge in question, while minimum play may be just so that some can be felt with the pliers, enough to prevent jamming and excessive wear. When no adjustment can be made on the jackhead and the section continues to knit crooked, the verge plate and needle bar must be checked. Complete discussion of this subject will be given in the next article appearing in this magazine.



This illustration shows the jackhead mounted on the jack rail and how turning the setscrew to the right moves the head so that the sinkers are pushed farther out. A reverse operation produces the opposite effect, providing, of course, the head is tapped in to bring the setscrew against the rail. When the setscrew on the lug is turned to the right, the jackhead is moved in the direction indicated by arrow "A". Arrow "B" indicates setscrew in lug. Arrow "C" shows point of jack where slur cam strikes. Arrow "D" shows that striking point of jack is moved in this direction. This arrow also indicates point where jack strikes sinker butt.

Jackheads Not Responding to Adjustment

Sometimes a jackhead will fail to respond to adjustment. This is generally caused by the retainer bolt being pressed against the side of the hole in the rail. Simply re-gauge the entire head with the standard gauge to bring the bolts in the center of the holes and re-set the slurcock. The necessary adjustment can then be made to have the section knitting uniformly. This maladjustment generally occurs from frequent settings over a long period of time. Jackheads may be found so much away from the original setting that the jacks strike the edge of the sinker head before throwing the sinkers out completely.

As there are many types of heads, no rule can be given for removing or inserting jacks and jack walls, and only by inspection can the fixer determine this. It is quite evident that after a long period of operation, inserting new jacks with old ones will cause streaks. Either fill one head completely with new ones and use the old ones in the other sections, or after inserting the new jacks file the entire jack head in some suitable jig made for that purpose.

All the newer type machines are equipped with jack springs to prevent bouncing or flying of the jacks and sinkers. These springs also aid in producing better fabric, especially during the knitting of the instep where the rockers must be used.

On machines having these springs, the jacks should be kept as free as possible by the periodic use of a good grade of needle oil, and occasionally flushed out with a cleaning solvent. When the jacks become stiff or gummed, the springs can do little good.

No rule can be given for setting these springs as there are many different types, but sufficient pressure must be kept on them to prevent the sinkers from re-bounding.

Let us first analyze the parts constituting a slurcock. The box is generally a solid casting made to receive the cam-holder in such a manner as to allow it to slide back and forth when the star or rachet dial is turned. The slot in which the star rests is just wide enough to allow it to turn freely without any play. Now, it is readily seen that turning the star does not move it in or out, but in turn moves the cam-holder and the cam in the desired direction.

The slurcock plate merely holds the cam-holder in position. On some machines this plate is fitted with a set screw, which when tightened, prevents any possibility of the star turning while the machine is in operation. Naturally, this screw must be loosened when an adjustment is to be made.

To one end of the cam-holder is fastened the cam-piece by means of two screws, the holes in the cam-piece having enough clearance to allow adjustment of the cam for squaring when the need arises. On the other end of the cam-holder is a small threaded shaft on which the star is mounted. This is a right hand thread.

Some type machines have an additional adjustment to prevent back and forth play of the entire box when mounted on the slur bar. This is accomplished by a brass insert on the back of the slurcock next to the bar and having two adjustment screws to take up

the play caused by wear. Care must be exercised not to bind the slurcock on the bar with this adjustment as a little too much pressure on each one will cause the entire machine to be too tight.

The slurcock is fastened to the connecting bar by means of two screws. The holes in the connecting rod through which these screws pass are made over-size to provide an adjustment which is necessary to have all the slurcocks synchronized, so that the first sinker in each section starts out at the same time keeping the lead uniform. When setting the entire machine it is best to center each slurcock as much as possible by feel so there will be room to move it to the right or left afterwards. Next, turn the machine until the first sinker starts coming out and check each section to determine whether some of the slurcocks are late or early. This adjustment can only be made after the sinker clearance in each section has been checked. As previously stated in the paragraph on jack head adjustments, the proper clearance between sinker butts and verge plates is not more than the thickness of two dividers, though considerably less can be used to a point just enough to prevent jamming and excessive wear. It is advisable to start off with not more than two dividers clearance and not less than one.

The Cam Piece

The cam-piece is hollow-ground in such a manner as to create the least amount of friction possible between itself and the jacks while moving the jacks forward, and to produce a uniform size stitch whether travelling from right or left.

It will be noted that there are two high points on the cam, between these points the cam being ground slightly concave. By placing the machine where the slurcocks will be in the center of the sections and pushing the sinkers back with the thumb on both sides of the slurcock, the contour of the cam can be felt with the pliers. The least amount of clearance will be at both high points with a slightly increasing amount towards the center of the cam. It is very important that at both high points the amount of clearance is exactly the same. If one side shows more clearance, it means that one stroke of the slurcock will make a smaller stitch. This means that the cam is not squared properly and will produce a fabric with a distinct washboard effect. Often times the slurcock is thrown crooked from a jack or sinker smash.

The remedy for this condition is as follows: Place the machine in such a position as to have the slurcocks directly between the jackheads, (this is at the extreme end of the stroke), and remove the cam-holder from the desired slurcock, first taking off the plate. Using a suitable steel square, hold it against the side of the cam-holder with the cam uppermost and place the right angle in such a manner as to be able to sight the two high points of the cam for squareness. If the cam is crooked, one point will be slightly low. By loosening one screw of the cam, tap the cam with a hammer, up or down as the case may be, until both points are uniform with the square. Tighten the screws firmly as there is quite a lot of pressure against this cam while in operation. Then reassemble in the box. Care must be taken when replacing in the cam-holder to see that the star is turned well in on the shaft to allow plenty of clearance between the verge plate and sinker butts when the slurcock is started out, otherwise, from handling the cam-holder, the star may have become out of adjustment. After the machine is turned until the slurcocks are in the center of the sections again, the clearance may then be adjusted.

At this point an explanation as to the reason the slurcock is made slightly concave between the two high points would be appropriate. While the slurcock is travelling across the jacks the sinkers are fed in by these through the curvature of the cam until they reach the fartherest point, or least amount of clearance in the sinkers. When this point is reached the tightest sinker is directly in front of one of the high points of the cam. Now, enough thread has been fed in by the carrier to form a kink the desired size of the stitch. As the cam moves to the next sinker and more yarn is fed in, it is necessary that a small amount is taken from the last sinker or else the tension in the yarn becomes too great, causing broken fibers. This is accomplished by the last sinker moving back a little—hence the concave shape of the cam to permit this. There is also another reason why the cam is so shaped which will be discussed in a later article pertaining to rockers.

The size of the stitch can be governed to a limited extent by the adjustment of the slurcock. If the clearance is increased beyond the thickness of two dividers, vertical streaks may result as past this point the sinkers will not be moved out uniformly by the slur-cam, some being farther than others. This greatly limits the scope of adjustment of this part and it cannot be over-emphasized the necessity of careful thought before attempting any change in position of the slurcock.

(Another article in the series by Mr. Cobert will appear in an early issue.—The Editors.)

Why Is Low Power-Factor Undesirable?

A low power-factor in an induction motor does not ordinarily affect its efficiency or operation. It merely means that for a given amount of power delivered the machine requires more current than would be necessary if it were operating at a higher power-factor. Power-factor is important, however, from the standpoint of generating equipment and transmission lines, which are rated on a basis of the current they can carry rather than the power they can transmit. A group of motors requiring 200 kilowatts at 80 per cent power-factor, for instance, would load to capacity a 250-kva. alternator, but if the power-factor were raised to 90 per cent, 25 kilowatts could be added without overloading the generator.

Where power is purchased, the power-factor of motors is of little importance to the motor user except when the power company puts a premium on high power-factor, or charges extra for low power-factor.

Fairbanks-Morse induction motors are designed to have as high a power-factor as possible consistent with high efficiency and suitable operating characteristics.—*E. M. C. Fairbanks-Morse.*

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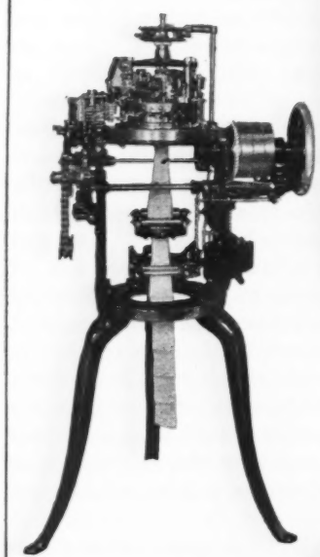

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KNITTING KINKS

Practical Discussions by Cotton's Readers on Various Knitting Subjects

The Spiral Attachment for S & W Machines

THIS article follows the series of eight discussions that we have published from the same author which dealt with the operation and adjustment of the Model K knitting machine. Those articles dealt largely with the plain machine (and universal parts used on the entire line)—whereas the present article broadens the discussion and takes up the widely used spiral attachment as applied to Model K, HH and B machines, in the production of men's, women's, misses' and infants' lines. The discussion of the spiral float stitch attachment, and other devices, will be continued in subsequent installments, making the entire series comprehensive and complete . .

MACHINES equipped with the spiral attachment are known as Spiral Float Stitch machines, the attachment being used on the Model K, HH, and B machines, including both large and small diameters on the Model B. Inasmuch as the device is applicable to various models of machines it is doubly valuable because it increases the scope of the machine's usefulness in producing many different types of goods in men's, women's, misses', and infants' lines.

It further demonstrates clearly the well known traditions of Scott & Williams to build universal attachments which will meet present and future demands.

The first spiral float attachment to be produced was the 13-step using a single selector for pattern control. Next came the 25-step using 25 selectors and other improved controlling mechanism.

When these devices first appeared on the market they were used to produce imitation wrap designs, vertical stripe effects, polka dot goods, meshes, and mesh designs. During the past several years spiral attachments have been used extensively in producing elastic top goods, generally called Davis cuff hose for misses' and children's, and self-supporting hose for men.

Many mills have spent a great deal of time, money, and effort (including sleepless nights and hectic days for some individuals) in developing something new in elastic top goods to satisfy present day, hard-to-please, selling agents, jobbers, and hosiery buyers.

So we begin the discussion of the spiral attachment, knowing that there are many who know more about this device than we do, but hoping there might be some for whom this discussion will be helpful.

First of all, what does the spiral attachment *do*, and secondly, *how* is it done? Boiled down to simple facts the spiral attachment does but one thing, it raises certain needles up from the regular needle level in the cylinder to a higher level. The needle selection is accomplished by controlling the spiral jacks so that some will be elevated by the lower jack raising cam and others will not.

Complete spiral jack control can be divided into three motions: 1. Pressing the upper part of *all* spiral jacks *inward* so the selective butts will protrude; 2. Pressing all jacks which are *not* to be elevated *back in* so they will pass in *front* of the *jack raising cam;* and 3. Raising all jacks which have *not been pressed in,* with the jack raising cam. The accompanying sketches show the various parts of the 13-step spiral attachment. Fig. 1 shows a 13-step spiral jack, having 14 selective butts, 13 of which can be used for pattern purposes and the remaining butt for idling. Note the straight line *a* to *b* and the pivoting point at *b*. The space between the line at *c* and the back of the jack indicates how far the bottom of the jack will move outward when the top of the jack is pressed in.

Fig. 2 shows a jack which has been pushed out; note the complete length of the selective butt protrudes beyond the face of the cylinder wall on the bottom of the selective butt is flush with the outside surface of the cylinder wall.

Fig. 3 illustrates a spiral jack with selective butts cut out for pattern purposes. At *a* selective butts have been properly cut out; at *b* selective butts have not been cut out entirely, leaving a ragged edge.

In Fig. 4 we see a spiral jack guard cam; the tapered position at *a* pushes all jacks in to their normal position in the cylinder; the recess at *b* permits the jacks to come out when the pushout cam presses against the upper part of the jack at *d* in Fig. 1.

Fig. 5 shows the single selector that is used on the 13-step attachment; it travels up and down, and

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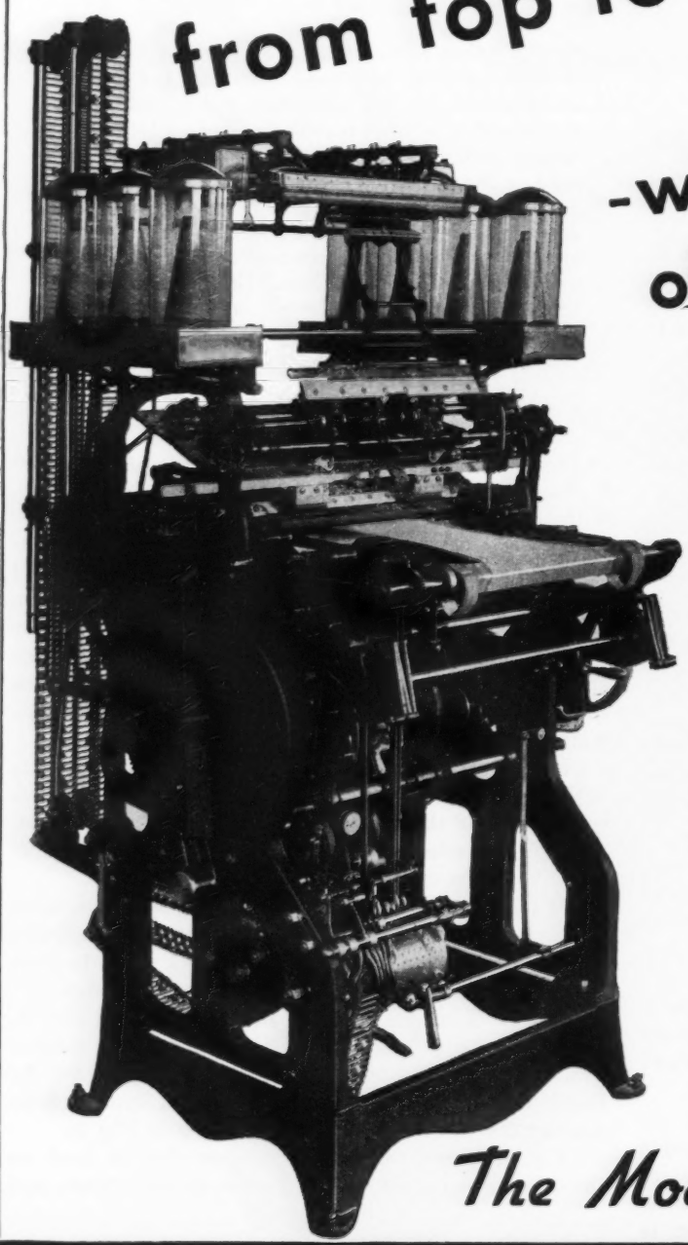
The eight previous articles, covering the operation and adjustment of the Model K machine, appeared as follows: Article 1, page 188, April 1937 issue; Article 2, page 157, June 1937 issue; Article 3, page 110, July 1937 issue; Article 4, page 127, August 1937 issue; Article 5, page 131, September 1937 issue; Article 6, page 192, October 1937 issue; Article 7, page 119, November 1937 issue; and Article 8, page 138, December 1937 issue.

These articles have covered yarn arrangements, make-up troubles, the cross-bar assembly, transfer trouble, the cylinder, stitch cams, auxiliary side cams, lower jack cams, auxiliary racking pawl assembly, auxiliary racking cam, auxiliary cam bracket, pattern chain, and driving mechanism.

-Knits the stocking in one operation from top to toe

-with PERFECT MATCHING of leg and foot!



Serious problems of production accompany the increasing trend to the finer gauges.

Bad matching of leg and foot, with consequent charge off for seconds and irregulars is not the least of these problems.

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can be moved in or out with the guide plate shown in Fig. 6.

Fig. 7 shows the jack raising cam, and Fig. 8 illustrates the pushout cam, lever, and bracket assembly. This assembly is fastened to a pivoted shaft and the lever bracket rests flush against the under side of the upper deck or bed.

There are quite a number of *do's* and *don'ts* in caring for and adjusting any attachment, each device having its own peculiarities, and the 13-step spiral attachment is no exception. Regardless of what kind of trouble may develop, there is one *don't* that must be observed, and that is *don't quit working to fix it.* Cuss if you will, lose your temper, fuss, fume, and fret, but never quit.

The first step in connection with the spiral jack control is camming the jacks out. Use only enough pressure on the pushout cam and lever assembly to bring the jacks fully out as shown in Fig. 2, or 1/32-inch farther if other adjustments will permit. In other words, cam the spiral jacks out far enough to get the benefit of the *entire* length of the selective butts. Excessive pressure on the upper part of the spiral jacks should be avoided as it only tends to wear out the pushout cam unnecessarily, creates jack vibration, and causes harmful strain on the pushout lever, lever bar, operating thrust bar, and main drum cams, which supply motion.

The pattern jack guard cam, shown in Fig. 4, should be set so the tapered portion shown at *a* will push all jacks in to their normal position in the cylinder slots. The recess shown at *b* should permit the jacks to remain fully out until they contact the selector. Make certain that the jacks do not come in contact with the guard cam at *c* because a slightly inward movement of the jacks at this point will make it difficult to get full control of the jacks with the selector. If for any reason the pushout cam or jack guard cam adjustment is changed, note carefully whether the bottom of the jacks bind against the face of the guard cam at *c*. Pressure against the bottom of the jack at this point will put a severe strain on the jacks at the pivoting point shown at *b* in Fig. 1.

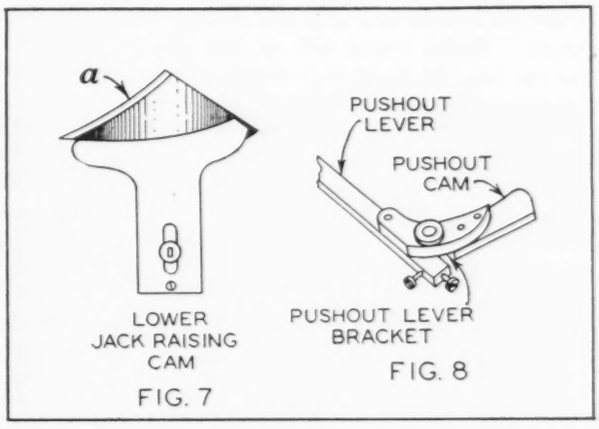

FIG. 7 FIG. 8

Friction on Spiral Jacks

Excessive friction on the spiral jacks is unnecessary and harmful for numerous reasons. As a rule jacks have sufficient friction as they come from the machine builder, and only enough friction is required to hold the jacks in position and counteract centrifugal force. Constant use will cause the jacks to lose some of their friction, and in such cases the fixer may increase the bend slightly in its original place; but don't bend the jack in the middle so it will resemble a half moon from top to bottom.

If the inner face of the guard cam becomes gapped or rough it indicates that the guard cam is *in* too far; re-polishing the cam will prevent vibration and assure better jack control.

The selector shown at Fig. 5 is pivoted on a shaft which permits free up and down movement according to the pattern set-up. Selector movement is supplied by a lever, arm, adjustable shoe, and a series of step cams which are mounted on the striper drum. The camming surface of the selector at *a* (Fig. 5) should be smooth and it should contact the selective butts fully at the respective steps.

Ample *in* and *out* adjustment for the selector is provided by the guide plate, Fig. 6. The selector must move freely on its shaft, and it will not operate satisfactory if the camming surface at *a*, Fig. 5, binds against the selective butts; excessive pressure at this point should be avoided. The selector guide plate should be set to conform with the difference in length of the selective butts from top to bottom and at each step the selector should push the jacks inward to their normal position. When the guide plate is properly set the selector will have an equal camming action against any selective butt from top to bottom.

Breaking out the selective butts on the jacks is important; they should be broken out completely as shown at *a* in Fig. 3, and don't forget to polish off the burr which

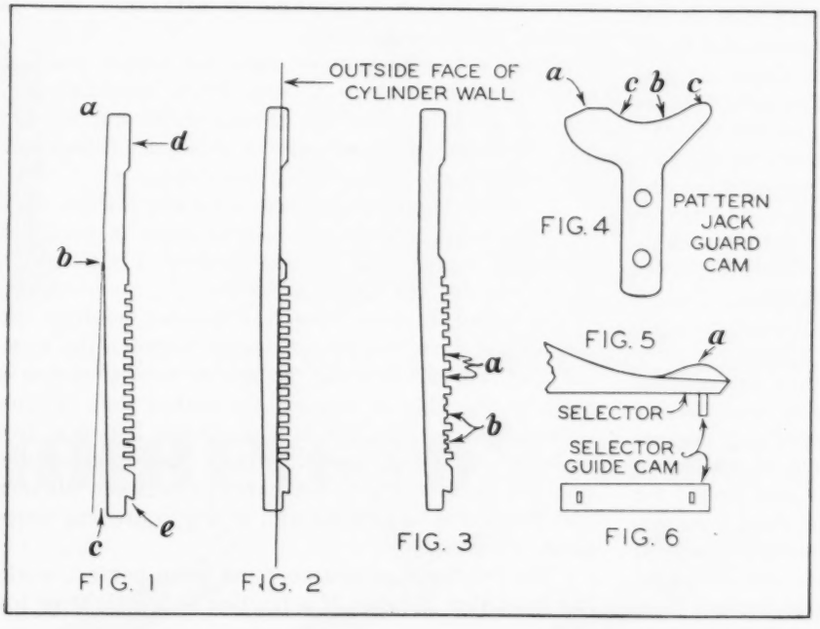

FIG. 1 FIG. 2 FIG. 3 FIG. 4 FIG. 6

is always left on one side of the jack when the butt breaks. Rough edges left on the side of the jacks will cut into the inner face of the cylinder walls, make it harder to raise, and lower the jacks, interfering with the free in and out movement of the jacks.

Don't break out selective butts as shown at *b* in Fig. 3 as it will be impossible to control the jacks properly with the selector if part of the selective butt is left on the jack. When the jack is fully out the selective butt must be cut off entirely in order to clear the selector at *a* in Fig. 5, leaving a part of the selective butt on the jack as shown at *b* will permit the selector to push the jacks *in* slightly and cause them to miss the jack raising cam, thus spoiling the pattern.

The jack raising cam shown at Fig. 7 requires little attention other than adjustment or an occasional re-polishing when it becomes rough or gapped. The raising surface at *a* should be slightly tapered so the inner surface is higher than the outer surface. This part of the raising cam should conform with the shape of the bottom of the jack as shown at *e* in Fig. 1.

Spiral Jack Control

There are several points worth remembering in connection with the spiral jack control. Make sure the pushout cam brings the jacks *out* far enough. Set the guard cam so it will not interfere with the jacks once they are out. Make sure that the selector moves jacks with the selective butts *on all the way in* and leaves jacks with butts *off all the way out*. Set the jack raising cam so it will just clear jacks which are *in*.

All other points being equal, there are two qualities which will put a machine fixer head and shoulders above his fellow workers. First, he must not be a quitter, and second, he must be a good diagnostician.

Only recently I had an opportunity to watch a machine fixer make a mess of diagnosing a case of spiral attachment trouble. The machine was set up on a diamond pattern and some of the designs were not clear because the yarns were not floating properly on certain needles. The fixer spent about two minutes looking at the bad work the knitter had laid on the machine, and without further ado he proceeded to do his stuff. First he changed the float finger adjustment; then he put more friction on a few spiral jacks; next he moved the selector guide plate in, but the pattern failed to clear up. He then tried moving the jack raising cam out, added a little more pressure on the pushout cam, straightened a few needles, and moved the jack raising cam back in, but still the machine failed to respond; his medicine failed to give relief because it was the wrong kind of medicine. Finally he decided to raise the selector so he adjusted the plate which rides on the step cams. After knitting a piece of fabric about six inches long he took a professional squint at it and saw that the trouble was getting worse. However, he was getting somewhere because he knew how to make the trouble worse, if not better. Then he really got down to business and looked for the trouble, thus finding out why; for some unknown reason a few spiral jacks were not coming down far enough and their selective butts were not lining up with the others—the selector could not contact them properly. Being on the right track, he had only to find out why certain spiral jacks were failing to come down far enough. The cause of all of his trouble was that a few cylinder jacks were slightly shorter than the rest of them in overall length. How they got that way is another story, but they were too short.

All the adjustments he made were simply guesswork—a shot in the dark with a hope to hit—but he missed.

If this same fixer went to a doctor with a severe pain in his back and the medico simply said, "Stick out your tongue and say 'ahh' ", then prescribed five or six kinds of medicine and pills, handed him his crutches and told him he would be all right in ten days, the fixer would think the doctor were crazy. Yet, he did that very thing with his knitting machine and called it fixing.

The only commendable thing he did was to stick to the machine until he had found the trouble; that's something.

If you are the kind of fixer that says "I can't", then it's curtains for you, but if you say "I can and I will" then stick to your guns, there's a better job with more pay waiting for you.

MATTHEW K. MITCHELL.

(This discussion on spiral attachment will be continued in an early issue.—The Editors.)

Dropped Stitches in Ravel Split

EDITOR COTTON:

One page 124 of the August issue of COTTON "CONTRIBUTOR NO. 6690" asked the readers for suggestions on how to stop the end stitch on the inside of a heel on full-fashioned from running when making a center section of mercerized yarn for topping waste. He states he is making an all-silk heel and uses mercerized yarn for the center section. He also would like suggestions on how to keep the selvage stitch on in the welts, stating that after making the first narrowing, which I presume is after the welt is turned, this trouble stops.

When using mercerized yarn for topper waste I have found that there is very little, mechanically, one can do to prevent the corner stitch not locking and the result is that quite a number of legs are spoiled because this stitch runs down.

In order to stop this trouble I have always used a finer gauge tube in the carrier than is used for making a mercerized center section. I also use a finer tube for the splicing carrier.

By using a finer tube, the carrier holding the mercerized yarn can be set deeper between the sinkers and the carriers can be set so that they are a little to one side of two sinkers rather than setting them so that they are in the center between two sinkers. In other words, with a fine gauge tube, one has more room to set carriers between sinkers and this helps to lock the end stitch to prevent dropping.

The frictions, of course, must be in perfect working condition because if a friction is too tight or too

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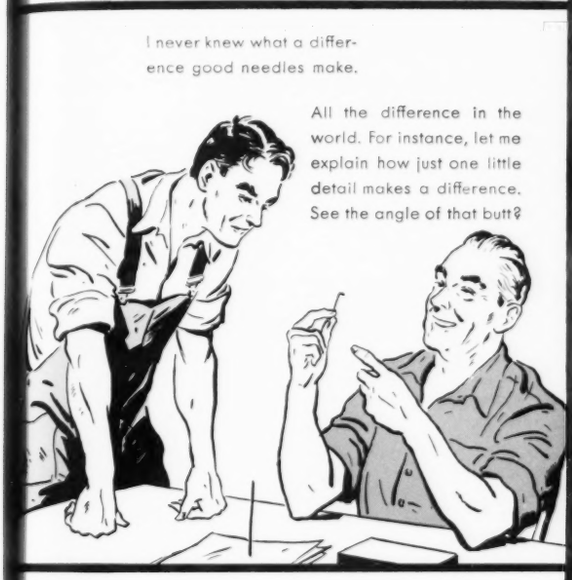
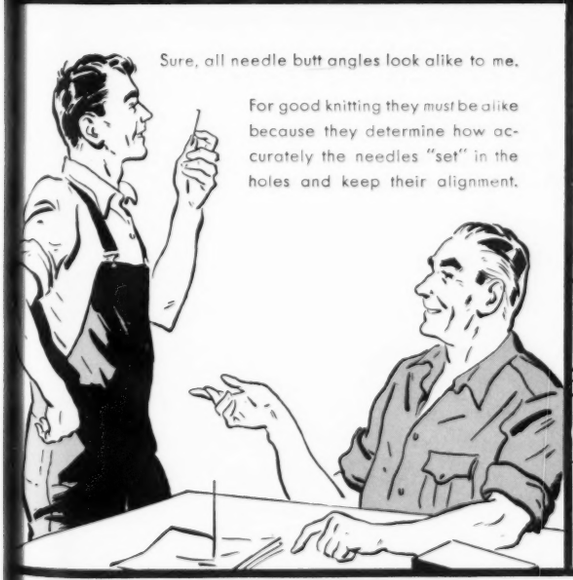
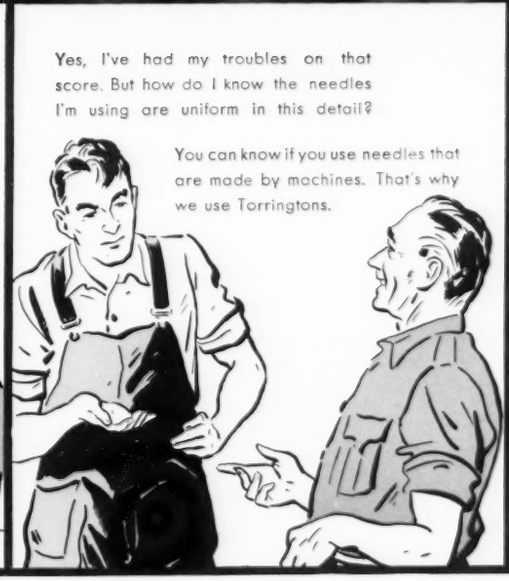
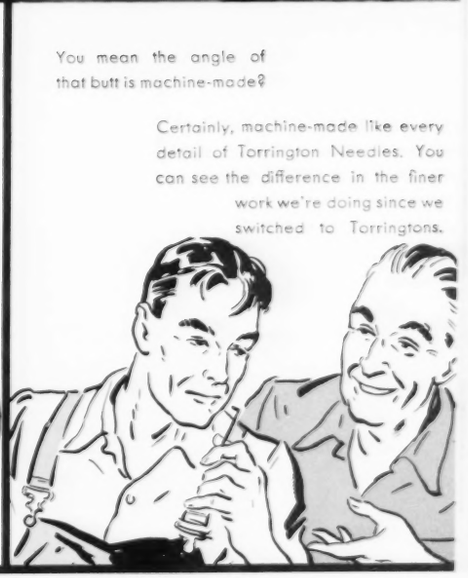
It is hard to realize that such a minute detail as the bend of the butt in a needle can have an important effect on your knitting.


I never knew what a difference good needles make.
All the difference in the world. For instance, let me explain how just one little detail makes a difference. See the angle of that butt?


Sure, all needle butt angles look alike to me.
For good knitting they *must* be alike because they determine how accurately the needles "set" in the holes and keep their alignment.


Yes, I've had my troubles on that score. But how do I know the needles I'm using are uniform in this detail?
You can know if you use needles that are made by machines. That's why we use Torringtons.


You mean the angle of that butt is machine-made?
Certainly, machine-made like every detail of Torrington Needles. You can see the difference in the finer work we're doing since we switched to Torringtons.

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It takes years to build a reputation that can be lost in a few weeks through compromise with quality. That Torrington has not only never compromised with quality but has steadily pioneered in improvement is evidenced by the universal respect that all knitters have for the needles in the red and green box, famous the world over since 1866. It is *your* guarantee of value and complete uniformity.

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loose then the carriers will move back and cause the stitch to drop. One thing the contributor should see to is that the knitter when making the center section will release the rocker motion and set the stitch regulator for the heel. The rocker motion has a tendency to help to lose the end stitch and this sometimes causes this trouble.

Another thing that should be watched is to see that the mercerized yarn thread is set properly before starting the machine to make the first course of the center section. Knitters are sometimes in too much of a hurry in making this change and the result is that the thread is not set properly to lock the end stitch.

As to the losing of the selvage stitch, would say that most hosiery manufacturers do not use the full head of needles so that they do not have this trouble. For instance, a legging machine has a 14-inch head. However, most manufacturers take out two needles on each side of the head and let all sinkers remain. This means that the carrier has a sinker on each side but no needles and the result is that the selvage stitch stays on. When one does not do this there is always more or less trouble with selvages in the welt. I think that this proves itself to the contributor as he states that after making the first narrowing this trouble stops. Therefore, I am of the opinion that he is using the full 14-inch head of needles, and if such is the case, I certainly suggest that he take out two needles on each side of each needle bar head.

Another suggestion that helps to keep selvage stitches on in the welt is to make a so-called blind narrowing after about one-inch of fabric in the welt has been made. By this I mean to have the knitters release the narrowing and carrier ratchet pawls and then dip the narrowing machine into the needles, the same operation as when narrowing regularly but with the pawls released; this does not move the narrowing fingers or carriers out of position.

C. H. BAXTER

EDITOR COTTON:

In your August issue, "CONTRIBUTOR NO. 6690" told of his difficulty, in knitting an all-silk heel on his full-fashioned machine, of having the end needle on either side losing its stitch while knitting a separate section of mercerized yarn for topping waste between the heels. He also finds the end needle of most heads does not have a stitch on while knitting the welts, but as soon as the first narrowing is made, the trouble stops.

This is a defect of common occurrence in full-fashioned knitting and one which is rather difficult to handle at times. The use of split dividers is always beneficial. The adjustments to be made on the machine for this trouble are as follows: snapper, press, and catch bar.

The snapper should not be too tight, but should have just enough tension to lift the take-up ring. The press should be as light as practical since the more the press the further the needle is advanced from the carrier.

The same thing applies to the catch-bar. If the catch-bar is too far front this will have a tendency to cause the end needle to lose the stitch.

CONTRIBUTOR NO. 6695

An Eye on the Knitting Mills

IT IS REPORTED that Mock-Judson-Voehringer, Inc., Greensboro, N. C., is planning to erect a mill on leased property in Siler City, N. C., the full-fashioned machinery for which will cost about $200,000. The building will be 110x210 feet and will cost about $40,000. Nearly 200 persons will be employed.

Work has begun on the new $25,000 hosiery plant in Union, S. C. The mill is expected to employ about 50 persons for the manufacture of both women's and men's cotton and rayon hose. Lewis Hines is to be superintendent.

Sports Wear Company, which will open a mill at Etowah, Tenn., has opened bids for the construction of a brick building, 250x80 feet. The mill is expected to employ from 150 to 200 persons and the building is to cost $15,000.

Holston Manufacturing Company, Knoxville, Tenn., is selling the 66 houses in its village. It is understood that many of those purchased are being taken by the employees.

Hugh Grey Hosiery Company, a new concern to be located in Concord, N. C., for the manufacture of full-fashioned hosiery, will have as its superintendent Arthur J. Cobert, formerly of the Richmond Hosiery Mills, Rossville, Ga.

Sapona Cotton Mills, Cedar Falls, N. C., has converted the No. 2 unit into a silk throwing plant, supplying the Acme Hosiery Mills and the McCrary Hosiery Mills with most of the yarn.

Baker-Moise Hosiery Mills, Dallas, Tex., is constructing an addition to the plant which will cost about $40,000. The new and additional machinery will cost about $100,000.

Hudson Silk Hosiery Company, Charlotte, N. C., is installing $20,000 worth of machinery for the manufacture of boxes. The company uses 40,000 boxes per week.

Soddy (Tenn.) Hosiery Mills, formerly controlled by the Richmond Hosiery Mills, Rossville, Ga., have been sold to the TVA.

Best Manufacturing Company, Gainesville, Ga., will build a $150,000 plant to throw silk yarn for hosiery manufacturers. Approximately 300 persons will be employed.

Crown Hosiery Mills, High Point, N. C., celebrated its 25th anniversary January 1 under the management of Harris Kearns, founder and president. Over 40 styles are made. The machines number 600.

A new knitting plant will be established in Gastonia, N. C., to be located in the building formerly occupied by the Ozark Mill.

Plans have been completed for the organization of the Demopolis (Ala.) Hosiery Mill. The building to house the machinery has been leased and machinery is being installed for the manufacture of men's rayon hose.

Labor! A Voice from the Ranks

Comments from a man in the mill.

EDITOR COTTON:

With the return of prosperity to the knitting industry, and political gestures of selfish and short-sighted politicians towards labor, we may look for labor trouble in the next year or so. Much of this trouble can be prevented if those in charge of help will take the trouble to build up the confidence and goodwill of their employees.

Strikes and lock-outs are the result of selfishness and shortsightedness on the part of someone. During good times, when labor has the upper hand, they are often caused by professional agitators, and quite a few of them are communistic. During hard times when jobs are hard to find, executives and the various bosses are not always as fair and considerate as they should be. That is a short-sighted policy, because when labor is plentiful it is the time to pick the best help and build up goodwill and confidence.

Some have tried profit sharing, the theory being that the employees will take more interest in their work if they know they will share in the mill's profits. That plan may work all right when the mill is making money, but when the lean years come and the employees fail to get any profits it would be pretty hard to convince the average laborer that the big boss was not holding out on him.

And This Comes from an Employee

Why should the help share in the profits when they put no money in the business? When they assume no risk? Some say labor makes it possible for the mill to make a profit and therefore is entitled to share it. The yarn dealers help to make the profits by supplying the right kind of yarn at the right time. They get paid for their services. The banker helps by supplying ready cash at the right time. He gets paid for his services. So the employee gets paid for his services and is no more entitled to a share in the profits than the supply man or banker.

No, you can not buy the employees' goodwill with bonuses and profit sharings. The average worker feels that if the mill has anything to give him he wants it regularly in his pay envelope. The best way to get along with help consistently is to pay the market price for labor and give the help a square deal. If labor is reasonable that is all they will ask.

As I said before, during the lean years the executives and foremen often are not as considerate as they might be of the help. They seem to forget the golden rule and demand of their help things which they would not do if the situation were reversed.

I know a knitting room foreman who has a weakness for pretty women. I have known him to hire a new looper many a time when he did not have enough work to keep his old loopers busy two-thirds of the time. He liked her smile or her eyes and having a place to put her, told her to come in when she got ready. Now that was taking work away from the other loopers and did not help any towards gaining goodwill for the mill. It is better to have 40 loopers making full time than 60 on short time and dissatisfied.

This same foreman—and too many mills have one or more like him—has some good knitters who never give any trouble and some others who are always complaining about something, usually something that can't be helped. As his good knitters give no trouble or complain he seldom speaks to them or makes any effort to show his appreciation of their good work. He spends quite a lot of his time flirting with the best-looking loopers and trying to pacify the troublemakers. A foreman like this is no help to the mill in the building up of goodwill.

In making promotions too many mill men overlook the employees who have qualified through faithful service. To be influenced by friends and relatives destroys the incentive of ambitious workers. This very thing, no doubt, has been responsible for many good workers turning Communist. Of course it is hard not to give our friends and the wife's relatives the breaks, but it is better to have them sore at us than to cause dissatisfaction and ill will of our best help.

One large hosiery mill in North Carolina made a rule during the depression that none of their employees could chew tobacco while on the job. Textile workers as a rule are great tobacco chewers. It does not interfere with their work and is a lot of satisfaction to them. Taking a worker's chewing privilege away from him doesn't promote his loyalty and goodwill. If this mill would forget this autocratic rule and provide the help with cuspidors it would be more effective to that end than a good baseball club.

Some foremen have an idea they must give a general lecture to all in their department every time things go wrong. They argue that it doesn't look right to bawl some out and not all of them. I fail to see the logic in that argument. If some workers are turning out bad work or causing trouble, why get the whole department excited about it? If a foreman is too lazy or lacks the ability to locate the source of the trouble, and lacks the courage to take it up there, then he has no business handling help.

A friend of mine, who has the reputation of handling help well, gave me the following rules for foremen who would avoid labor troubles, so I am passing them along:

1. Never ask your help to do anything you would not do yourself.
2. Don't treat your help as if they were school children or prisoners in the penitentiary.
3. Whenever possible let them do their work their own way; it's results that count.
4. Consider all suggestions from your help; they may have an idea, and it encourages them to think.
5. Don't be afraid someone under you will learn your job; he won't step into your shoes as long as

you can fill them.

6. If you have friends or relatives working for you, forget it during work hours.

7. Don't get familiar with women working in your department.

8. Set a good example for your help by staying sober over the week-end.

9. Don't take your mill worries home with you.

10. Don't let your wife or your breakfast spoil your disposition for the day.

I have used these ten commandments and find they usually work. Whenever I get into hot water I can usually check up and find that I have broken one or more of them.

I have tried to call attention to some of the more common mistakes mill men in charge of help often make. These mistakes, while apparently small, tend to cause discontent and lack of confidence and respect among employees. These are the seeds from which most labor trouble grows.

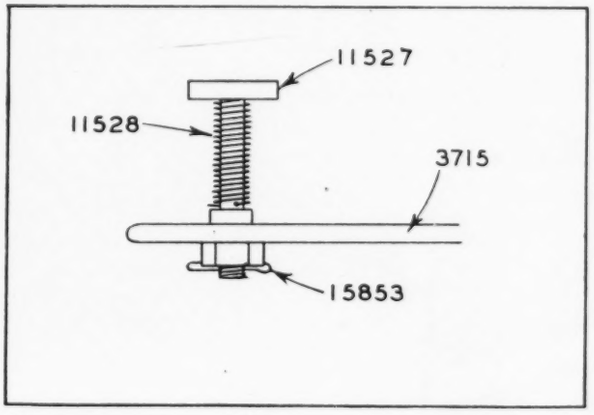
CONTRIBUTOR No. 6651

A Kink on the Dropper Controlling Lever

EDITOR COTTON:

Here is another "kink" for the discussion department.

We had a lot of trouble with the plunger cutting the cotter pins in half; when this happened it let the plunger come up and kept the dropper from picking the needles down. This caused the machine to smash when the switch cam came in.



When you figure how many times this plunger works in one day and night, on a 25-step Spiral HH machine, making 10 dozen hose a day, with the plunger working two times in each sock, or 48 times to one dozen pairs, it will be seen that the cotter pin really does some service.

To remedy the cotter pin's breaking we threaded the end of a dropper controlling lever plunger up to the top of the cotter pin roll with a 10/32 die, and then put a 10/32 nut with a groove in it.

The accompanying illustration shows how this arrangement works. This nut keeps the cotter pin from being broken. We have not had any trouble with cotter pin breakage since making this improvement.

The sketch shows the old way and the new way of the cotter pin on the dropper controlling lever plunger.

We also had trouble with the spring coming off of the dropper controlling pin which caused the same trouble as outlined in the foregoing paragraphs. To remedy this we drilled a small hole in the dropper controlling pin at the same place on the pin where the spring was placed originally. We then put the spring through the hole of the controlling pin, making it impossible for the spring to come off as before. This may be seen in the sketch also.

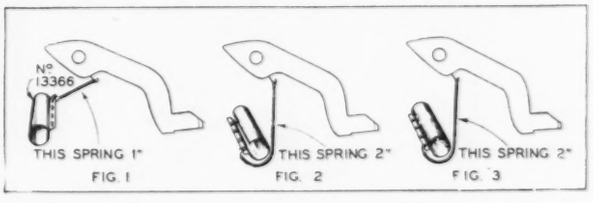
CONTRIBUTOR No. 6718

A Kink to Improve a Kink

EDITOR COTTON:

In the July, 1937, issue of COTTON on page 109 there appeared a helpful kink to prolong the life of yarn changing springs. Instead of using the standard one-inch spring, Fig. 1, "CONTRIBUTOR No. 6680" uses a two-inch spring, Fig. 2, turning the sleeve holder half-way around to accommodate the longer spring.

This is a very clever idea; there is no doubt that a two-inch spring will retain its potency much longer than a one-inch spring. This man is on the right track; but I would like to offer one criticism or suggestion.



As shown in Figs. 1 and 2, reproduced from the July issue, the holder is a split sleeve with a portion turned out at right angles to receive the lower end of the finger springs. Now, inasmuch as these springs are constantly under tension and are wrapped about half-way around the sleeve holder, the pull of these springs has a tendency to cause the holder to slip on the pin. (See curved arrow in Fig. 2.) Should this happen the springs would lose their effectiveness.

To overcome this danger, I suggest reversing the holder on the pin so the wing will be above the split instead of below it. See Fig. 3. In this way the pull of the springs would tend to cause the split holder to clamp the pin tighter—the principle is the same as the chain pipe wrench.

Of course, in any event, the holder can be made tight enough to stay in place for awhile, but as he illustrates it, the pull of the springs will in time cause the holder to slip.

CONTRIBUTOR No. 6719

It is reported that the Ware (Mass.) Valley Company has been sold to the E-Z Mills, Inc., which operates plants at Bennington, Vt., and Cartersville, Ga.

"Things may serve long but not serve ever"
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. . . Because we want to improve our competitive position . . . Because we can no longer afford to waste time trying to squeeze a profit out of obsolete equipment! In production-for-profit, even those full-fashioned knitting machines that were new in 1930-31 are severely handicapped in competition with the speed, balance and flexibility of the new READING high-production Machines of 1937. Write us for facts—and figures.

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TRENDS and HIGHLIGHTS of the KNIT GOODS MARKETS

New Business in Knit Goods at Standstill. Price Adjustments About Completed. Drastic Curtailment Among Manufacturers

Philadelphia, December 16, 1937.

HOSIERY and underwear manufacturers have been operating at the lowest rates in several years during the last few weeks, much lower than should be seen even during the last month of the year. There are indications that even more severe curtailment is in store during the last two weeks of the month when manufacturers will have even more clearly in mind their determination to end the year with as small stocks as possible. Except in full-fashioned lines where branded houses have yet to announce any change, there is a feeling that prices of knit goods have been fairly well deflated and that buyers can not hope for much more in this respect. Local knitters of full-fashioned lines generally speaking are accepting offers 25 cents a dozen less than a few months back and buyers do not expect much more than this after the first of the year, when spring delivery merchandise is being considered. Minor concessions have been granted in cotton underwear during the last month but in general, these lines appear to have struck a bottom and although new business has been very quiet, resistance to further downward pressure is being felt.

Full-Fashioned

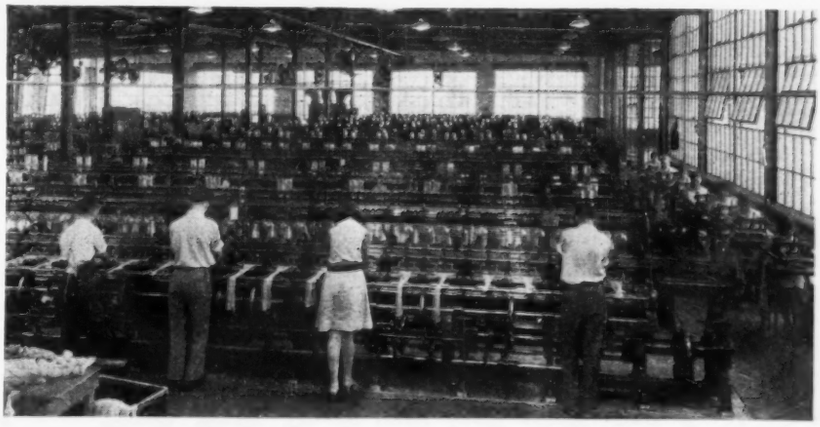
Demand for full-fashioned hosiery has been very small, retailers buying hand-to-mouth with the intent of keeping their inventories at the lowest possible level. Weakness has been most apparent in prices of low-end hosiery, whereas makers of branded lines have not only been doing much better than unbranded, but their prices have been holding relatively firm. Hosiery jobbers report that numbers which retail at 89 cents to $1.00 have been the most active in recent weeks, which has been reflected in slightly better operations among branded than among unbranded companies. Novelty lines have been doing more than their share of the limited amount of new business and in the lead have been iridescent lines which retailers term the best novelty item that the hosiery industry has developed for years. There has also been a relatively good demand for black heel numbers to retail at $1.00 and one firm stated that in such numbers they are three weeks behind in making deliveries. Demand for meshes has been less active than a month ago. Retailers say that hosiery to retail at $1.00 or slightly higher has been far ahead of the general market. The low prices to be had on staple hosiery numbers have started buying on the part of some of the large seamless users for the next spring season, but full-fashioned mills say that most of their customers are inclined to wait until after the first of the year.

Men's Half-Hose

Up until last week the weather has been retarding sales of men's wool half-hose, jobbers reporting that up until this time they had moved hardly any of these lines and several expressed the opinion that unless cold weather was shortly experienced, they would have to carry over much of this to next year. Low temperatures throughout the country during the last week have resulted in the movement of the large amount of this type merchandise into consumer hands and jobbers now assert that a considerable portion of this lost business will be made up. Men's half-hose to retail at 25 and 35 cents per pair have been the most active with jobbers recently and they also report fair demand being shown in lines to retail at 50 cents.

Anklets

It is estimated that not more than 30 per cent of the normal amount of business in anklets for spring of 1938 has been placed to date. Jobbers and retailers say that they do not look for further important reductions in these lines but they add that general business conditions make it unwise for them to anticipate further their probable needs during the early part of next year. They report prices are considerably lower than a few months ago but that no important changes have been made during the last month and it is the consensus of opinion prices are not apt to fluctuate widely in the near future. These numbers are bought by the jobbers to retail in certain price brackets and mill prices



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ROYERSFORD NEEDLES

have already declined to a level that will permit retailers to merchandise these lines at prices that have in the past proved satisfactory to the consumer. Jobbers say they will not place much additional business until retailers begin to take delivery of some of these lines which probably means that knitters of anklets will experience a sub-normal demand for a couple of months ahead at least, but this may be offset to a certain extent by calling in deliveries on their present contracts earlier than usual. This is expected because it is felt that stocks of these numbers are not large.

Women's Seamless

Volume in these numbers has been small but holding up as well or slightly better than the market average. Low prices available from several mills have been a matter of general comment. In certain sections of the country, the movement to boycott silk and its products has manifested itself in a slightly better demand for rayon hosiery in seamless, while in another direction a full-fashioned lisle stocking has been developed, the result of eight months of development work by the Durene Association. Such hosiery was placed on sale this month, one retailer pricing them at $1.15. There has also been a better demand for women's lisle seamless, one house selling a seamless style for $4.00 to retail for 59 cents and the full-fashioned number for $5.75 to retail for 75 cents. Improved demand for these numbers is generally attributed to recent boycott talk against silk hosiery. Curtailment of seamless production is now very sharp and indications are manufacturers of these lines have stopped building up stocks.

Underwear

Aside from minor reductions by some of the mills making cotton ribbed suits, prices of underwear have held steady during the month. New business has been at a very low level and manufacturers have been curtailing to a lower basis than seen for several years. Such plants in Pennsylvania have been running only one or two days a week and there are instances where they are closed down completely. Yet there are signs of improvement both in heavyweight and the lightweight ends. Cold weather has improved sentiment during the last week and a fair amount of heavy underwear was moved by wholesalers. A fair amount of re-order business in heavy underwear has come to the mills. Buying for next spring in different underwear numbers also showed improvement during the week, one or two mail order houses beginning to make commitments. Less is heard of price changes in spring lines and the market is convinced that quotations are stabilized for that season. On cotton ribbed suits quotations of $5.75 have been reported and it is rumored that even this price has been shaded in certain instances. Chains that have been holding off placing spring orders say that they will be in position to buy some goods shortly. Buying for the new season on the part of mail order houses has been dragging for months past, several of them claiming that their present stocks are large enough for them to start next season. Manufacturers do not expect to do nearly as much business for the coming spring season as they did during the early months of this year.

Forecast

(Opinion offered by "Cotton's" market correspondent.)

Philadelphia, December 16, 1937.

Based on the action of commodity markets during the last month the long decline has come at least to a temporary end. December 8 the Government issued the cotton crop estimate, predicting 18,746,000 bales, the largest ever to be grown in the United States and topping the 1926 crop, the next largest by about 800,000 bales. It was significant that cotton did not go lower but in fact showed steadiness after this record-breaking estimate.

In wool the top futures market hit a low point late in November and so far this month has regained about 8 cents of it back so that wool dealers and several spinners feel that this November low will not again be broken soon. A similar development was seen in silk which hit a low of $1.55 in late November and since has come back 5 cents or more up to the present.

These developments in the commodity markets have had an effect in yarns and while no great advances have been made sellers have adopted a firmer tone which seems destined to carry on to the new year. Spinners' margins in all type yarns are small or non-existant so that with commodities steadier the lows of yarns reached in late November should gradually be improved with sellers holding for slightly more but still quoting relatively low to get rid of stocks for immediate shipment. In this connection the trade does not look for a nearby sustained spurt in prices but a gradual improvement.

Reflecting this trend in yarns, manufacturers of knit goods are not apt to quote lower on cotton hosiery or underwear than was the rule late in November and early December but in full-fashioned silk goods the trade expects some concessions to be made in official price lists to bring them down to competitive conditions which in some instances have been 25 cents per dozen. Branded houses will have to name 1938 prices around the first of the year and many feel they will make some reductions. Rayon yarns are not expected to change much but we may see a slight reduction early in the new year. Underwear manufacturers are felt to have prices down to a healthy basis and indications are nothing important can be gained by simply waiting for lower prices in these lines. There are many in the trade that feel the volume of business that could be placed at the very lowest prices would be limited, that manufacturers and spinners will up their lists materially as soon as any demand makes its appearance. Yet many feel the textile business will not regain any worth while activity until about March although late January should see the beginning of the change.

While there are no reasons to buy far ahead in most lines there are far more adequate coverage ahead than we have seen. That this feeling is held by some manufacturers is seen in their recent making up of fair sized stock which they expect to prove good investments during the first half of 1938. By March general and noticeable improvement in volume and prices of textiles are due.

Ribbed-Top Patent Compromise

As reported briefly in the December issue of COTTON, a compromise settlement of the elastic-rib-top hose patent situation was reached at a meeting of a committee of hosiery manufacturers, machinery manufacturers and representatives of the Elastic Patents Company, in Washington, on November 23, including payment of one-half cent per dozen royalty instead of the 2 cents originally asked. The hosiery manufacturers' committee agreed to accept such a settlement of the patents controversy for themselves and to recommend its general acceptance by the industry. Although the committee had no power to commit manufacturers, other than themselves, it is believed their recommendation will be followed by all half-hose manufacturers using the process. The recommended agreement provides for payment of royalties on shipments, not production; that all first-quality goods made by licen-

sees shall be stamped with their license number; that machinery manufacturers shall reimburse the hosiery manufacturers' committee for the money thus far spent on this matter, which is understood to be relatively small. The one-half cent royalty is so small it will not disturb any price ranges and will not cause any heavy payment to the patent owner, it being estimated that the total annual royalties will be between $20,000 and $25,000.

Although there was some doubt that the patents involved would stand up in court, some manufacturers agreed in private conversation that the inventor should be credited with at least a measure of genuine invention, for which he was entitled to some reward. There was a desire also to avoid costly litigation. In general it was felt that the agreement would not work a hardship on anyone and will not place any mills at a competitive disadvantage. The committee of hosiery manufacturers was: P. W. Eshelman, of Wilkes Hosiery Mills Co., North Wilkesboro, N. C.; H. M. Liddick, of Moorehead Knitting Co., Harrisburg, Pa.; W. L. Eshelman, of Industrial Hosiery Mills, Mohnton, Pa.; H. E. Katzenmoyer of Chipman-Lacrosse Hosiery Mills, East Flat Rock, N. C.; E. E. Whisnant, of Whisnant Hosiery Mills, Hickory, N. C. Machinery manufacturers: H. W. Anderson, of Fidelity Machine Co., Philadelphia, and H. S. Horrocks, of H. Brinton Co., Philadelphia.

Associations Merge

Full-Fashioned Hosiery Association, Inc., has merged with the Full-Fashioned Hosiery Manufacturers of America, Inc. The first-named group was formerly known as the open-shop group whereas the latter association was generally referred to as the closed-shop group of manufacturers because it has a national contract with the American Federation of Hosiery Workers. The first-named association formerly represented about 60 per cent of the full-fashioned hosiery machinery so that a combination of the two groups will represent the bulk of such manufacturers in this country. Developments during the last year indicated action of this nature was to be expected. During this period the hosiery union has organized and signed contracts with 37 mills in the Philadelphia area, most of whom were former members of the so-called open-shop group. Now that they have union contracts, some of the members felt that a separate association from the closed-shop group was no longer necessary. In addition to this, the association was affected unfavorably when late in September formal organization was completed of the Keystone Hosiery Manufacturers, Inc., composed of mills in the Reading district.

Mills in that area have their own contract with the hosiery union in many instances, and quite a few of them were formerly members of the so-called open-shop group and they, too, felt in some instances there was no longer any necessity of belonging to two associations. Offices of the Full-Fashioned Hosiery Association, which were formerly maintained at 1420 Walnut Street, are now at Bristol Street and Germantown Avenue, where Joseph Haines, secretary of the so-called closed-shop association, has headquarters. The Full-Fashioned Hosiery Association will disband and be dissolved. Charles Lehmuth, secretary of the open-shop group and Mr. Haines state that the staffs of both associations are being retained and their joint efforts will produce an organization able to bring the hosiery industry into closer harmony and create standards that will definitely stabilize the industry. The by-laws were changed providing for inclusion as members of hosiery manufacturers irrespective of whether they have closed or open shops or no labor agreement whatever, provided the standard of wages, hours and methods of arbitration and duration of agreement are the same.

New Spring Colors

Twelve colors, eleven of them new, and all showing a general tendency toward lighter shades are included in the 1938 spring hosiery color card, issued to members by the Textile Color Card Association. Plaza beige, a light shade for general wear, is the only carry-over number. The new shades are Sunni beige, a light warm beige, Stroller, a light golden tan; Entre Nous, a beige of blush cast; Cruise Tan, a sun-tan shade; Aloha Tan, a medium tan of golden cast; Vagabond, a neutral beige; French Mist, a neutral light taupe; Sun Nude, a light sun blush; Tropic Tan, a coppery shade; Copper-blush, a medium copper of rose cast and Exotique, a burnt clay shade. Sunni beige, Stroller, Entre Nous, and Plaza beige are grouped together as "On the Avenue" shades are suggested for town wear. The coppery tones are grouped together as "Under Tropic Skies" and the neutral shades are called "Travel Tones". Colors in both groups are suggested for cruise and southern wear. The color card stresses coordination of hosiery with costume, shoe and accessory colors.

Selling Agents in National Hosiery Mill Group

Selling agents in the hosiery industry, at a meeting called by officers of National Association of Hosiery Manufacturers in New York, November 23, expressed approval of a plan suggested by Managing Director Earl Constantine that those affiliated with the manufacturers' organization set up their own division within that body. The purpose would be to facilitate regular conferences between agents and manufacturers and special ones in case of emergency. It was believed that in this manner a closer working relationship can be established between manufacturers and the selling offices. William H. Gosch, president of the National Association, spoke at the meeting and expressed approval of the idea. The association, it was pointed out, has for several years past, given expression to the necessity of paying larger attention to the merchandising problems of the industry.

A very large part of the hosiery product is marketed through selling agencies, so that any program to correlate production and merchandising would involve the cooperation of selling agents with the manufacturers. The plan also takes in managers of direct selling offices in New York and manufacturers who maintain their own selling offices. Attention was called at the meeting to the similar idea already worked out in the cotton industry, with the Cotton-Textile Institute representing manufacturers and the Association of Cotton-Textile Merchants of New York, the selling end. In the new hosiery group, it is proposed the selling agent select their own chairman and that they shall function without the formality or expense of a separate organization.

Supreme Court Denies Review of Apex Hosiery Case

The United States Supreme Court refused to pass on the constitutionality of sit-down strikes in a case involving the Apex Hosiery Company, Philadelphia, on December 13. The action had been requested by the American Federation of Hosiery Workers, a C. I. O. affiliate, with headquarters in Philadelphia, as a result of a sit-down last summer at the Apex plant. The court ruled in effect that since the strike had been settled long ago, there was no

need now to pass on the issue. The Supreme Court sent the case back to the Philadelphia District Court with instructions to dismiss it. The company had asked the Supreme Court to refuse to review the controversy. The union had sought a Supreme Court decision confident that the result would be an affirmation of the legality of the sit-down. M. Herbert Syme, counsel for the Federation, said that it "merely means the union will not have the court at this time pass on a question it wanted settled, but that otherwise, the decision was not a loss for the union. This case was not settled on its merits. The court merely refused to settle it because it felt the strike was over and that a decision at this time would merely be academic." The company suit against the union for $3,000,000 in damages is still pending and the union attorney indicated that it is his intention when this damage suit comes up in the District Court, to raise the question again.

Hosiery Union Retrenches After Active Organizing Campaign

Thirty-seven hosiery plants have been signed up under closed-shop agreements in the Philadelphia district since January, William Leader, president of Branch 1 of the American Federation of Hosiery Workers, said. He indicated the next move would be to retrench but at the same time to hold gains already made. He said that members pay high dues and assessments and that they are anxious to have these assessments reduced as fast as possible, and in line with this thought, he suggested that a group of about 25 organizers who have been doing work in the strike situation during the year should be transferred, if possible, as prospective organizers for the National Federation. This would seem to indicate that full-fashioned hosiery manufacturers during the next few months at least, will not be confronted with the serious labor disturbances that were witnessed during most of 1937. With hosiery manufacturers on curtailed schedules and employees being furloughed in numerous instances, this announcement by Leader means that the hosiery union in Philadelphia is cutting expenses to meet smaller budget requirements.

Early in December the National Labor Relations Board began hearings on charges that the Berkshire Knitting Mills, of Reading, engaged in unfair labor practices. One of the witnesses was Fred Werner, president of the Berkshire Employees' Association, who said the association had 3,108 members as of November 25 and that this number represented a little more than two-thirds the total number of employees at the mill. The Berkshire, in its reply filed with the board, denied that the company has been or is engaged in interstate commerce within the true meaning of the National Labor Relations Act. Concerning three employees whom the Hosiery Federation charged were dismissed because of their membership in the union, the firm admitted it terminated the employment of one but contended that two others were laid off for lawful reasons. It further asserted the company has not violated any provision of the National Labor Relations Act, and declared the charges made by the hosiery union's Branch 10, through its president, Luther D. Adams, "are not made in good faith, but merely for the purpose of annoying and harassing the respondent."

Japanese Boycott

The hosiery industry may become an innocent victim of the anti-Japanese boycott agitated by various organizations, the National Association of Hosiery Manufacturers fears. The association stated that so far the boycott agitation that is coming from various organizations including college students, has had very little direct effect on hosiery manufacturers. It found there has not been any marked switch from silk to some other commodity. The association said also a distinction should be made between a boycott of raw material and one of manufactured goods from a foreign country. Secondly, the equipment used in making silk hosiery is highly expensive and the wages among the highest paid in the textile industry. The knitting equipment alone in this end of the hosiery industry represents an investment of over $150,000,000. If used on cheaper merchandise, the wage structure would probably suffer.

Hosiery Rayon Rules

The words "mercerized" or "Durene" may not be used instead of "cotton" in labeling hosiery under the rayon trade practice rules recently issued by the Federal Trade Commission, according to a statement by the National Association of Hosiery Manufacturers. The same prohibition probably applies to "lisle". Four representatives of the hosiery industry conferred with the commission. One of the rules stated if goods containing rayon are of a coarseness which will not permit stamping, the requirements rules must appear on the riders' bands or other packing; the term "rayon-plated" used alone does not fulfill the requirements because it leaves out mention of the under-surface yarn; mention of the rubber in elastic tops is not necessary; imported goods are governed by the rules from the point at which they enter American commerce.

Strike—No Xmas Fund

Approximately 2600 workers of the Apex Hosiery Co., Philadelphia, thrown out of work from May 6 to late August by a strike, not only lost wages over a period of three months and a half but a Christmas fund that would have amounted to approximately $300,000. Last December, 1,900 of the workers shared in distribution of a fund of $172,547 but about $300,000 had been pledged before the end of 1936.

Underwear Mills Ran at 44 Per Cent in November

The underwear industry ran at 44 per cent according to a survey covering the period from November 15 to 25. In the knit cotton and wool end the Underwear Institute found fourteen mills closed, sixteen at 1 to 25 per cent; twenty from 26 to 50 per cent; thirteen from 51 to 75 per cent; four from 76 to 90 per cent and only one operating at 91 to 100 per cent. Of those going direct to the retailer none was closed; six were running 1 to 25 per cent; fourteen from 26 to 50 per cent; five from 51 to 75 per cent; seven from 76 to 90 per cent and two from 91 to 100 per cent.

Hosiery Union to Oppose Any Labor Cost Cut Plea

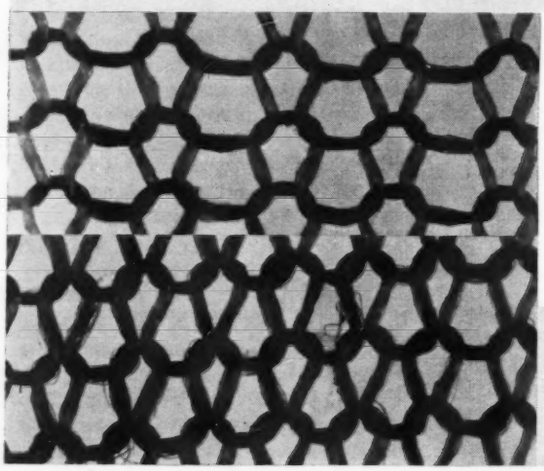
Only by increased Government spending in social directions can the present business recession be routed and an approach to prosperity be maintained, Emil Rieve, president of the American Federation of Hosiery Workers, said December 7, at the close of a two-day meeting of the National Executive Board of the hosiery union, at which representatives of 80,000 hosiery workers surveyed conditions in the industry. He said it will be futile and the height of folly for any manufacturer at this time to attempt to secure wage revisions or effect a lowering of standards. Rieve declared any such attempt will meet the strongest opposition from the union. To lower labor costs would only serve, he said, to start a new downward spiral of industry and social conditions.

We change its name, but it's still the same • Formerly 'BROSCO' :

NOW IT'S Durabond

Trade Mark Reg. U. S. A. and Canada

THE HOSIERY FINISHING THAT IS THE EXTRA VALUE IN APPROXIMATELY 75% OF ALL QUALITY HOSIERY MADE TODAY!



Durabond (formerly "Brosco") Finishing makes the difference! A difference you can see and feel! An important difference that sells hosiery on sight!

Smoother texture — dull, sheer loveliness. The first photomicrograph shows *why;* threads smoothly bonded together, loops regular; present a film of protection against water spots, runs and wear. *Durabond* Finishing can't weaken or "burn" the silk, rather — increases the life of the hosiery. In contrast — the lower photomicrograph. Uneven loops, free ends, unsealed threads; this unfinished hosiery appears fuzzy, uneven — and has but a fraction of the service life of the *Durabond* Finished hosiery.

Large difference? Exactly. And it explains why hosiery *Durabond* Finished makes more sales, more rapidly—and makes a permanent customer of *every* customer.

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Of Purchases Bought on Impulse!
WITH
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Your Products Take Advantage of That First Impulse—which is to BUY

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Arcadia Hosiery Co. Plans Gradual Liquidation

The Arcadia Hosiery Co., Lansdale, Pa., employing about 300 workers, is planning to close, according to notice by the management in which employees were advised to seek other employment. David Subin, member of the firm, said the firm plans to liquidate and will not start up in any other section. The plant was operated on an open-shop basis.

Underwear Manufacturers Discuss New Pennsylvania Labor Law

Underwear manufacturers have been studying a new law in Pennsylvania providing for a 44-hour week for employees, in effect for women and shortly to be effective for males. The Underwear Institute announced that a committee of the industry would bring to the attention of the State Labor Department the difficulties of limiting strictly dyeing and finishing operations to eight hours a day when completion of the job as quickly as possible is essential. The committee of manufacturers is headed by Walter W. Moyer together with Roy A. Cheney, managing director of the Institute.

Asks for Investigation of Hosiery Union

Declaring that hosiery workers have lost $2,700,000 in wages during the last year as a result of strikes called by the American Federation of Hosiery Workers, Raymond D. Trautman, editor of the Hosiery Examiner, Reading, Pa., asked the Philadelphia office of the National Labor Relations Board, to investigate alleged unfair labor practices of the union. He specifically mentions a case at the Colonial Knitting Mills, Mohnton, Pa.

United States Imports Less Japanese Hosiery

The quota agreement, plus the boycott of merchandise by several groups here of merchandise manufactured in Japan, has resulted in a reduction of hosiery imports from that country. Data for October, issued by the Department of Commerce, show imports were only 69,000 dozens of all kinds of hosiery, compared with 258,000 dozen for the same month in 1936. For the first ten months this year the total was 1,309,000 dozen compared with 1,727,000 dozen for the period last year. The quota agreement which limits the year's total imports from Japan to 1,500,000 dozen is being reinforced by agitation in some of the daily press and among certain groups against buying goods "Made in Japan" while the undeclared war continues in China.

Sport Wear Hosiery Co. Erects Plant in Tennessee

Work of constructing a building for the Sport Wear Hosiery Co., Philadelphia, makers of sports and children's hosiery, at Etowah, Tenn., was begun last month and contractors expect to have it ready for the installation of machinery in about three months. The mill will employ around 150 workers. The concern is one of the largest of its type in the Pennsylvania territory. At times it has employed about 600 to 700. Its plant in Philadelphia is at D and Ontario streets where it has been located for many years. Beyond confirming the report officials would make no comment. There are reports in the trade that it will erect other units of approximately this size in several different southern locations.

E-Z Mills Acquire Otis Underwear Brand

The E-Z Mills, Inc., have purchased all the capital stock of the Ware Valley Manufacturing Co., of Ware, Mass., according to an announcement made by Sherman P. Haight, treasurer of E-Z Mills, Inc. By this purchase, they acquired the Otis underwear trade mark, which has been known to the trade in connection with men's underwear for seventy years. E-Z Mills, Inc., have plants located at Bennington, Vt.; Cartersville, Ga., and Chattanooga, Tenn., and a spinning mill (Richmond Spinning Co.) also at Chattanooga. Both lines, as heretofore, will continue to be marketed to the wholesale trade by A. S. Haight & Co.

Hosiery Shipments Decline in October

The current issue of the *Statistical Bulletin of the Hosiery Industry*, prepared by the National Association of Hosiery Manufacturers, states that what has officially been termed a "business recession" played an important part in curtailing demand for almost all types of hosiery in October of this year. The Bulletin points out that there is a close relationship between business activity and hosiery consumption. The extent of the current decline in business activity is illustrated by the drop of 15 per cent in the Federal Reserve Board's index of industrial production from the high point reached last December. With the trend of general business now exerting a dominant influence on hosiery demand, hosiery manufacturers are urged to study with extreme care business factors not only within their industry but also outside their industry, and to guide their policies accordingly.

The extremely high demand for most types of hosiery during the first quarter of this year is emphasized by the fact that, in spite of the sharp declines in demand in recent months, total shipments of all types of hosiery during the first ten months of 1937 were still 6.3 per cent ahead of shipments during the same period in 1936. However, in the case of men's half-hose, children's and infants' hosiery, and cotton bundle goods, cumulative shipments for the first ten months of 1937 were below shipments for the same months last year, by percentages ranging from 1.0 per cent to 6.0 per cent. Gains for the other types ranged from 3.3 per cent in the case of ribbed goods to 19.2 per cent in the case of anklets.

The *Bulletin* states that it is difficult to conceive of a situation developing during the remainder of this year which would bring total shipments of all types of hosiery for 1937 below the total for 1936. It is pointed out, however, that the year 1938 probably will not begin under as auspicious circumstances as those which marked the beginning of the year 1937. New peaks in hosiery demand were reached in the first quarter of last year, and it is with these favorable data that a comparison of first quarter figures of 1938 will be made.

New Welt Device

Karl Lieberknecht, Inc., Reading, Pa., has made available a welt device that automatically lays in the stocking and turns the welt on a full-fashioned machine, said to be applicable to any type of machine. It may either be built in new machines or secured as an attachment on existing machines. The results of the operations are reported to increase production by approximately 25 per cent. There is also a saving in direct labor and overhead. There is also an advantage in the reduction of needle breakage due to the automatic laying-in and welt turning.

Offer Manufacturing Data

Union Special Machine Company, 438 North Franklin St., Chicago, Ill., is offering technical information on standard types of stitches, recommended seam structures, and sewing machines for producing them in a large sized, well illustrated printed piece. The literature is so prepared that it can also serve as an attractive calendar for the year 1938 and can be hung on the wall where all information is readily available.

TRENDS---THE YARN MARKETS

Cotton Yarns Showing Resistance to Further Decline. Better Tone In Worsted With Scattered Advances. Rayon Producers Curtail. Silk Fails to Improve

Philadelphia, December 16, 1937

THE YARN situation has improved from the sellers' angle this month, this being the first in several such a report could be made. Improvement has been in both prices and new poundage in cotton and worsted; rayon demand has been small and silk buying has not changed materially. Cotton yarns have been helped by the steadiness in the raw market in the face of the Government predicting December 8 the largest crop in our history but even then raw cotton held well. Many yarn buyers have worked down inventories so that they must buy some whether they want to or not. In worsted yarns the advance from the late November lows in the wool top futures market has given spinners more confidence and a few made the first advances in worsted yarn quotations early in December that were made in many months. Buying in worsted yarns has been larger in knitting but no better in weaving.

Cotton Yarns

Prices have held well during the last month except in a minor number of instances. Knitting yarns are unchanged in carded but combed for knitters is 1 cent lower; weaving yarns are about 1 cent under last month's level even though the raw market is now higher than at the middle of November but unbiased observers agree that the best resistance since the long decline began has been apparent.

Carded knitting yarns are being quoted about at the prices of a month back but in single combed there have been cuts up to 2 cents in such numbers as 30s now held at 28 cents to 29 cents compared with 30 cents last month but many spinners have only come down 1 cent in the period. There has been no further change reported in mercerized yarns since the price list of early November which took 60s two-ply ungassed down to 63 cents. Knitters can buy for less but this is always true there being some smaller operators that underquote these.

The cotton yarn consuming trades have been curtailing drastically this month, more so by far than is seasonal. Many lines are down to 25 per cent operating schedules which means they are doing about as little work as possible unless they close down altogether. Carpet mills in this section are down to 10 to 15 per cent rates; underwear mills upstate are running from a high of 35 per cent down to several closed. Most of them are open for one or two days a week. To meet this situation in the consuming end spinners have to curtail.

They have been doing so but sellers here say unless excessive stocks of yarns are to accumulate spinners should go down to operating schedules no larger than their customers. Large combed yarn producers have been doing this but in the case of smaller makers of carded yarns it is felt that stocks have been built up, in instances too large which will soften the market later on. Spinners now are quoting 1 cent higher for 1938 deliveries than for immediate and many say present premiums they have to pay for good cotton, even to make a fair grade 20s two-ply, are so high that only losses can be made at current prices. This leads sellers to predict that only a limited poundage can be bought at current levels and that when buying starts the bottom will be short-lived.

Worsted Yarns

Although continuing easy late in November, in sympathy with the raw material markets, worsted yarn prices began to show a steadier tone early in the present month and a few spinners have announced slight price increases. This is significant because it is the first advance announced by any spinner since the early part of this year when commodity markets all began their downward course which has continued uninterrupted, at least, until late in November. The wool top futures market struck its lowest point late in November and since that time has advanced at least 8 cents and this was the main reason that spinners have been stronger and many of them unwilling to take quite as low prices as they would have a few weeks back.

As an example, spinners of single dyed yarns used by the bathing suit trade were quoting as low as $1.10 for 18s in low quarter blood, whereas at present $1.15 is the minimum and spinners are reluctant to accept much business at even this level. In two-ply yarns, prices are approximately 5 cents lower than a month ago, there having been no advance in these since the low point late last month. Spinners quote 2-20s, 50s at $1.00 and a few smaller producers will go several cents under this for immediate delivery business. Demand from outerwear manufacturers has been very slow because they refuse to buy on a declining market and in addition jobbers and retailers have not been placing their spring orders for the same reason. Spinners in this vicinity for this reason are operating on greatly curtailed schedules and averaging hardly more than 25 to 30 per cent.

There has been considerable talk in the trade of a reduction in rayon yarn prices from manufacturers who have watched the severe drop which has occurred in cotton, wool, and silk. Producers of these yarns, however, call attention to the 20 per cent wage increases which most of them granted at various times during the present year as the best kind of an argument why present prices of rayon are justified. It is also emphasized by sellers that during the first quarter of 1937 when other textile fibers were advancing rapidly there was no change made in rayon so that logically the consumers can not expect reductions at present. Notwithstanding this, several large consumers in this section indicate that they look for minor reductions to be made in the near future and probably accompanied by assurance from producers that these prices would not be changed over a specified period of time.

Rayon

During the last few weeks producers of these yarns have curtailed more than for a good many years. Demand has been small and shipments on old orders are diminishing and in view of this operations in the industry that were equal to about 85 per cent last month, have been curtailed further to around 65 per cent. Deliveries of rayon yarn again showed a drop during November when the index was 252 as compared with 366 for October and a 1936 monthly average of 669. Producers' stocks of yarn as a result again increased, amounting to 1.8 month's supply at the end of November compared with 1.1 month's supply at the end of October. With more producers announcing plans for shut-downs around Christmas time, it is expected the industry's curtailment will be sharper for the month than for November. In view of this, producers' overhead costs are proportionately larger now than when their plants are being run on their usual full-time basis.

Silks

After reaching a low point November 26, raw silk has been steadier and staged a slight advance but this has failed to carry through to any appreciable extent. Hosiery manufacturers, using about three-quarters of all the silk imported in this country, have been buying a little bit more readily but they have shown no inclination to load up and there is a feeling that the lows in this commodity have not yet been reached. Prices are involved to a certain extent, with the undeclared Chinese-Japanese war and what the effect of it will be on Japanese exchange and whether or not it will bcome necessary for Japan to get rid of silk quickly in order to secure international exchange for armament use. Takings of raw silk by American Mills during November totalled 31,749 bales, which compare with 40,401 for the same month in 1936. Takings for the eleven months to date are 403,317 bales against 413,013 for the same period last year. December 1 stocks were 45,424 against 40,834 a month previous.

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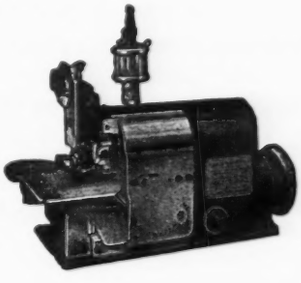

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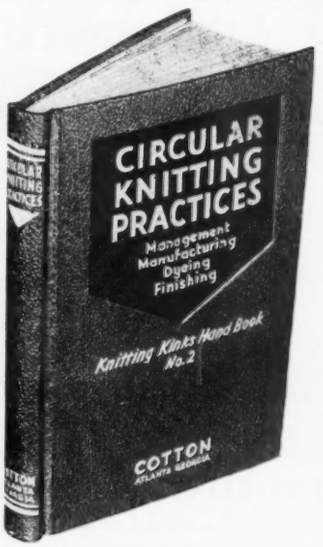

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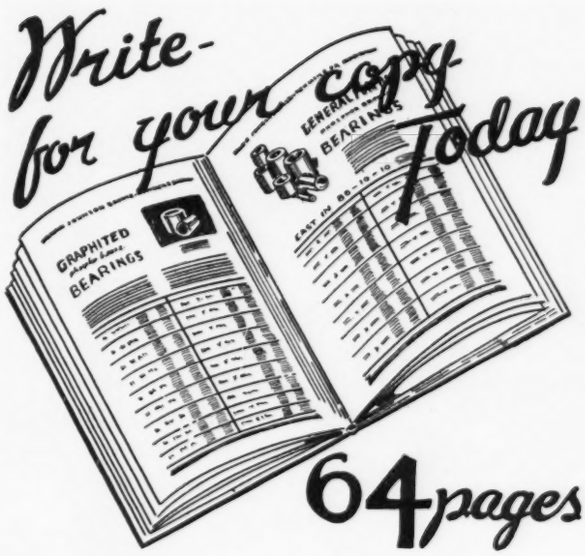

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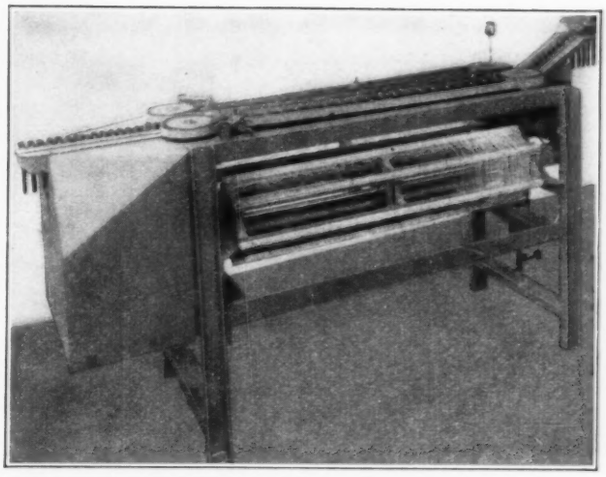

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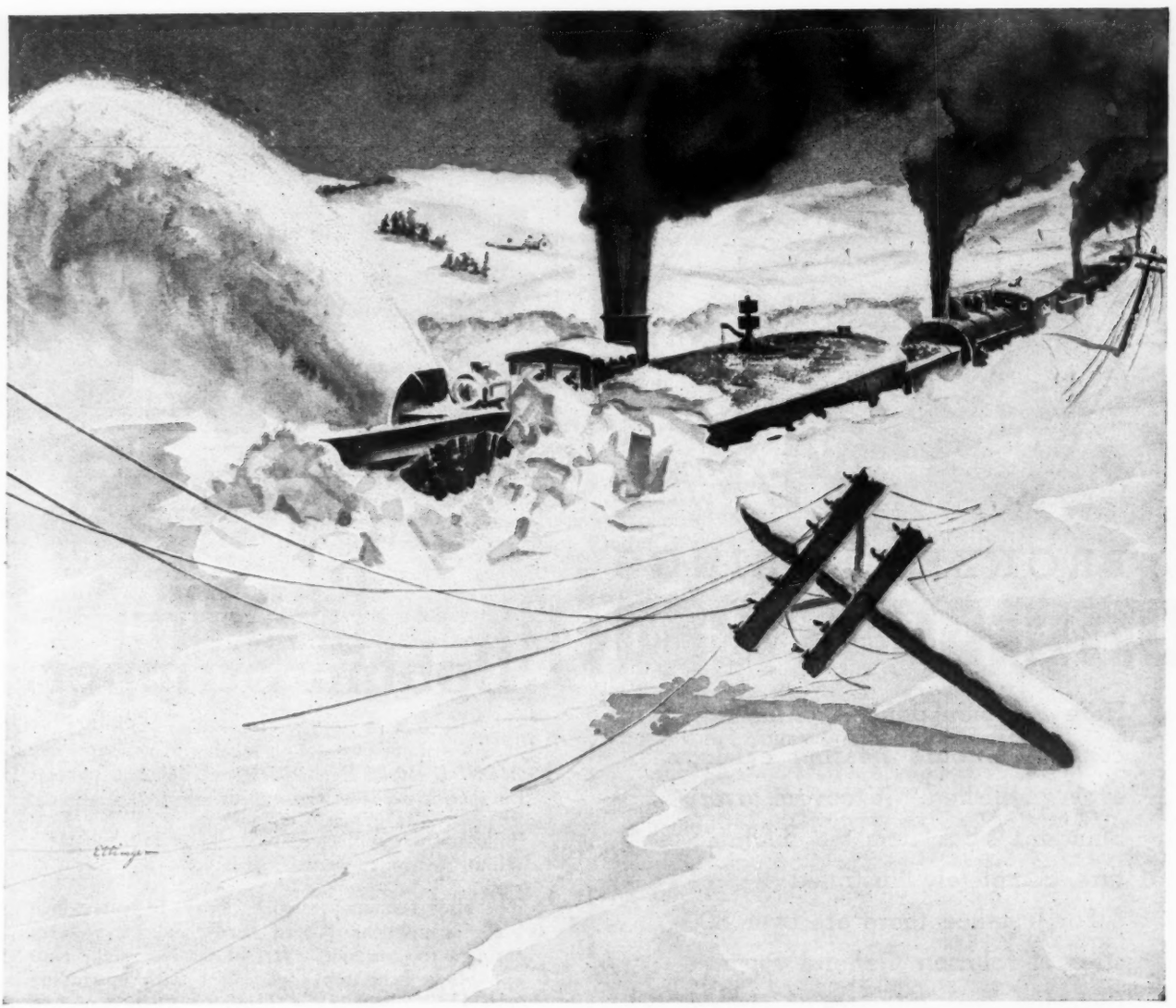

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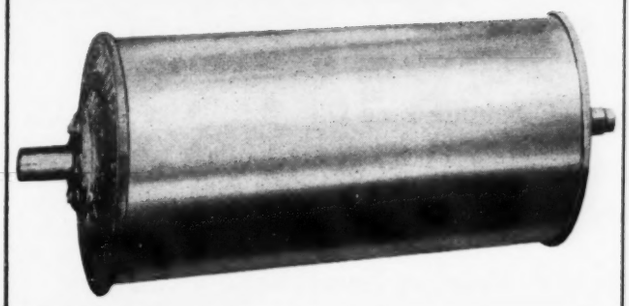

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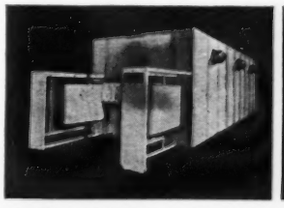
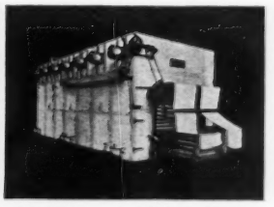
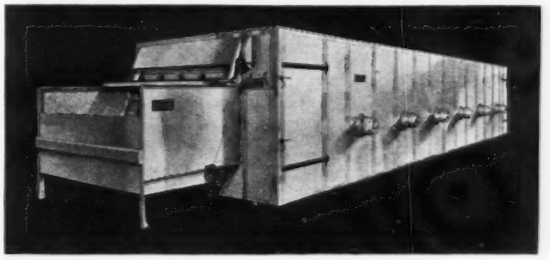


Automatic Yarn Dryer



Multipass Airlay Dryer



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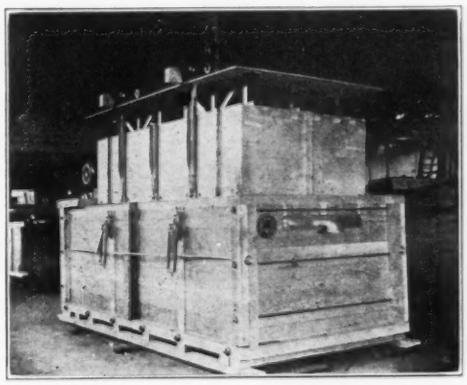

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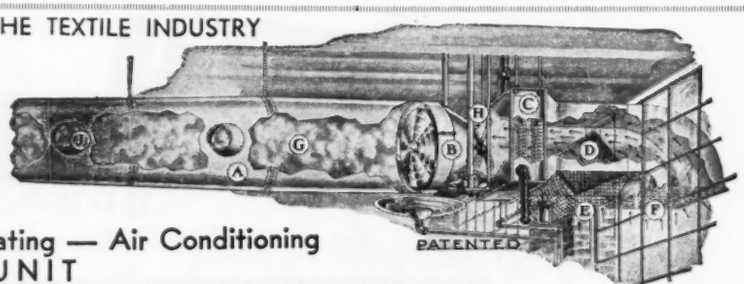

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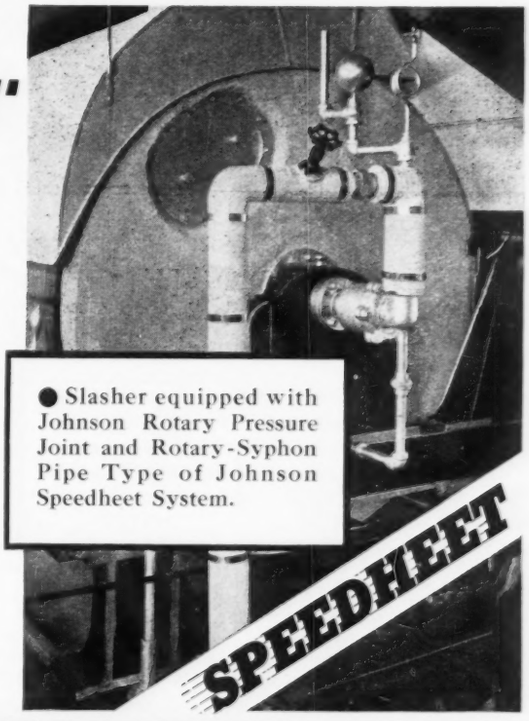

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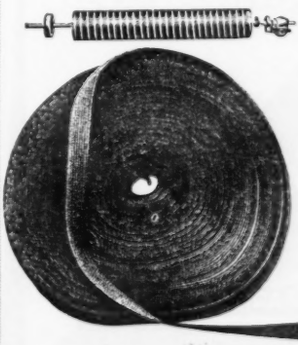

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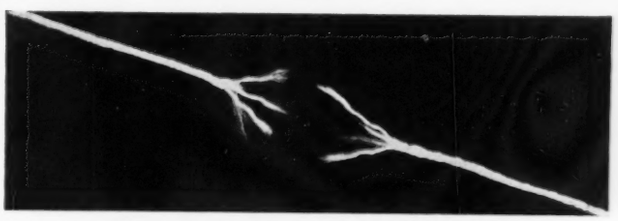

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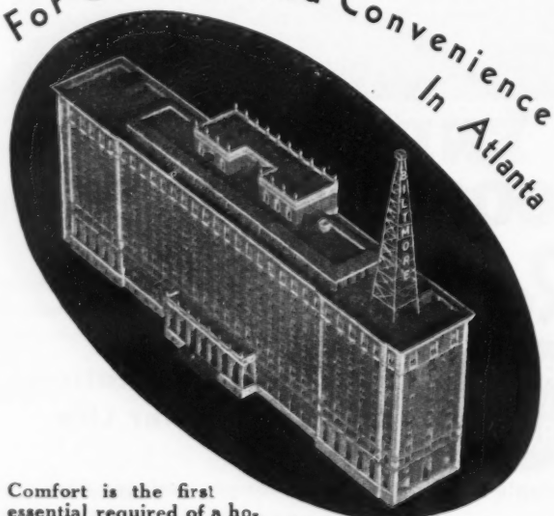

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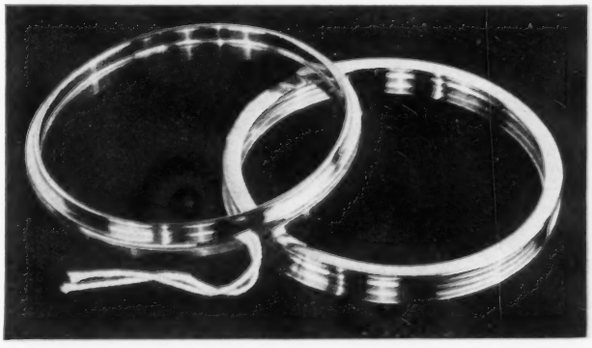

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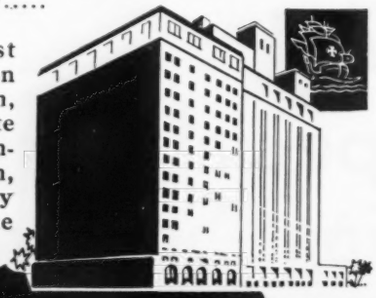

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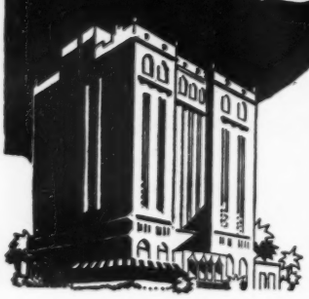

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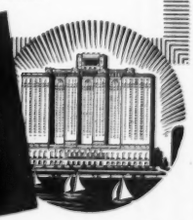

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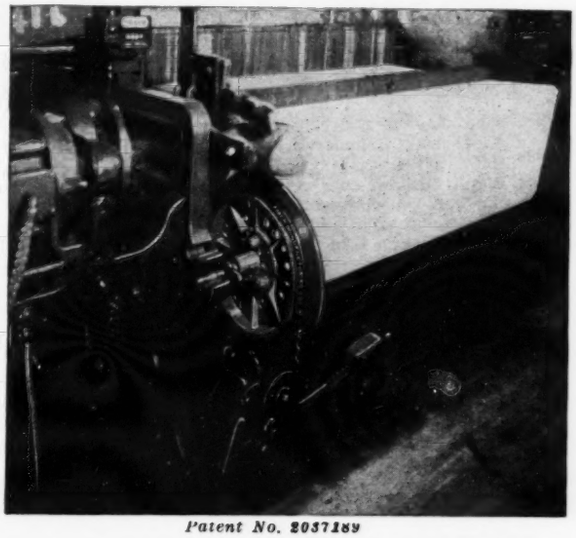

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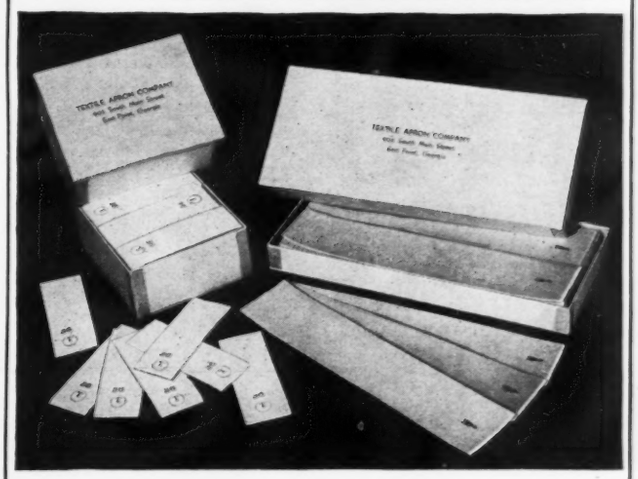

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..... (Syst m).
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Send to the attention of Mr.....
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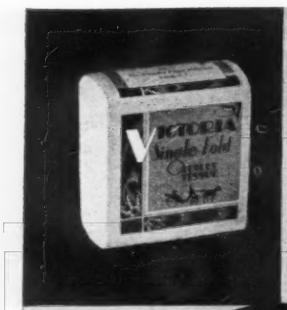

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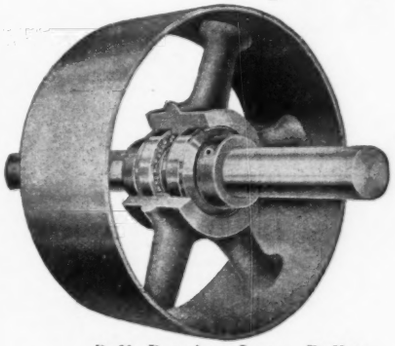

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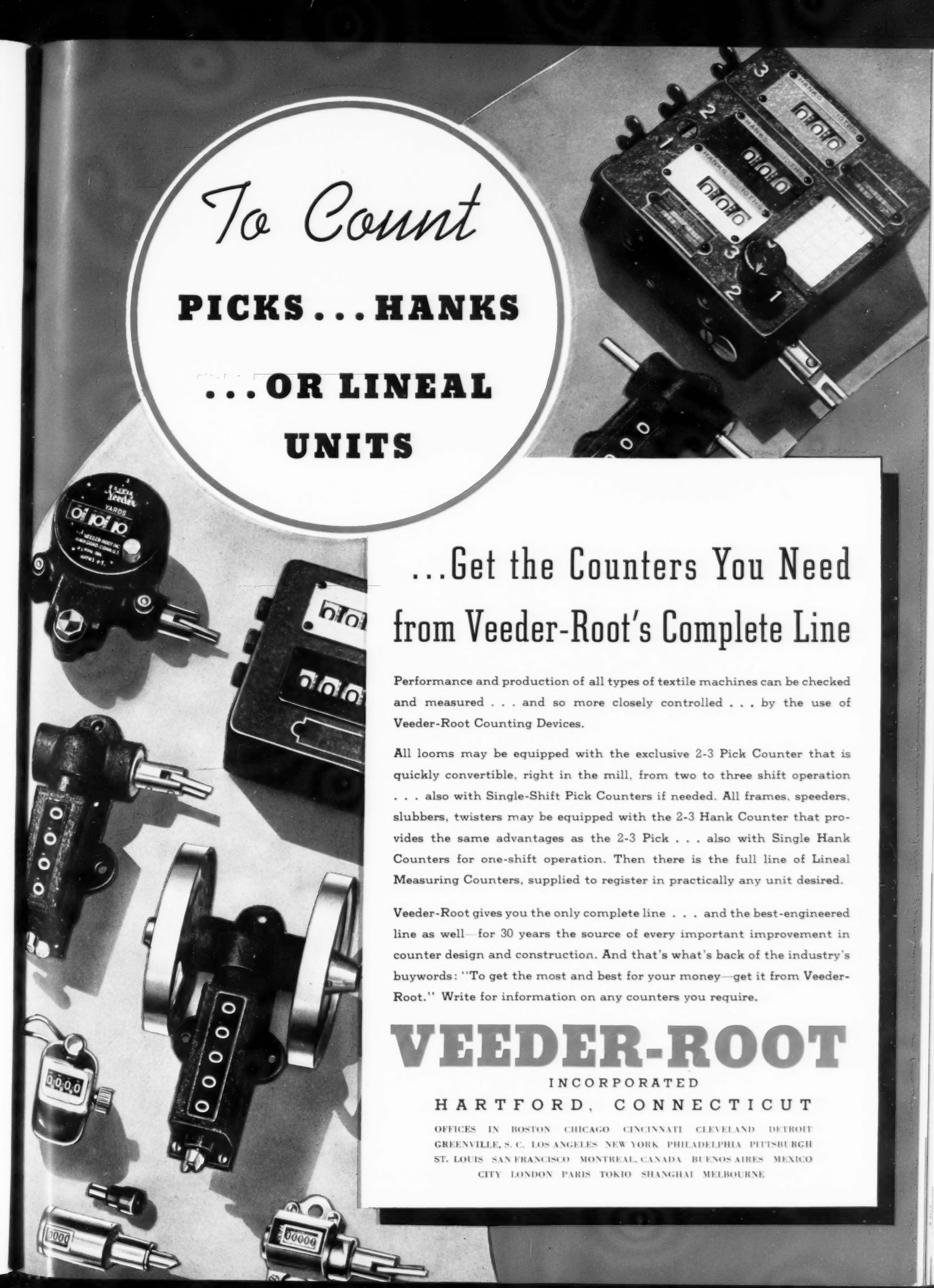

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